THE BUILDER

a Journal for the

ARCHITECT & CONSTRUCTOR

VOL. CLVII DECEMBER 15 1939 No. 5054

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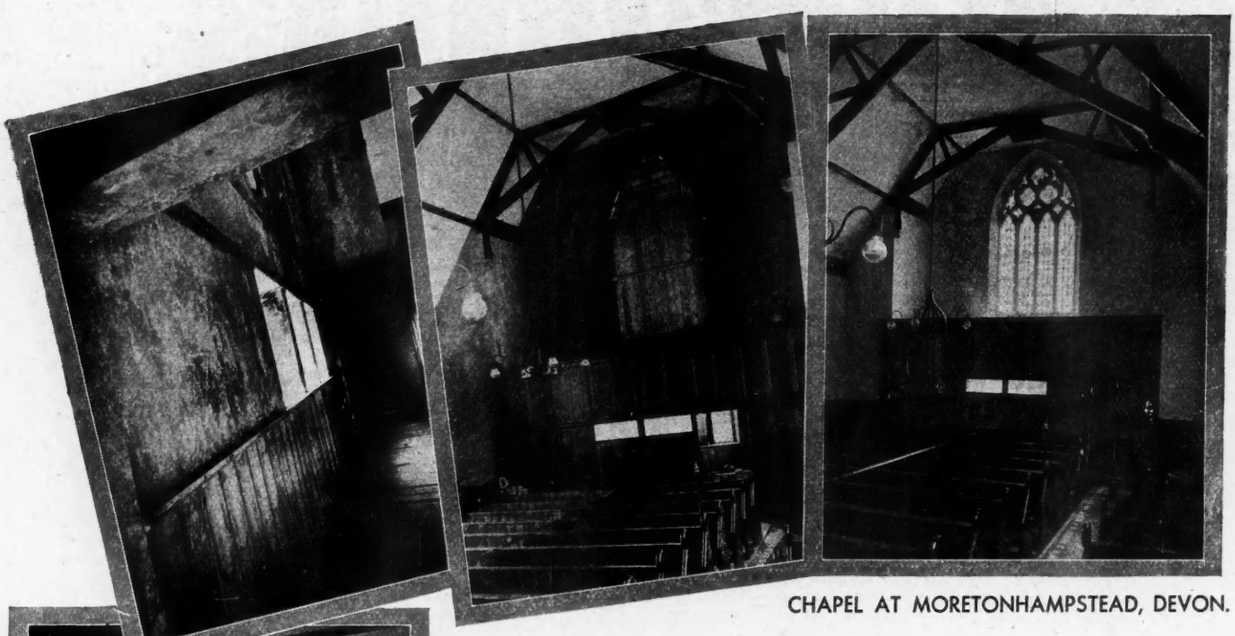

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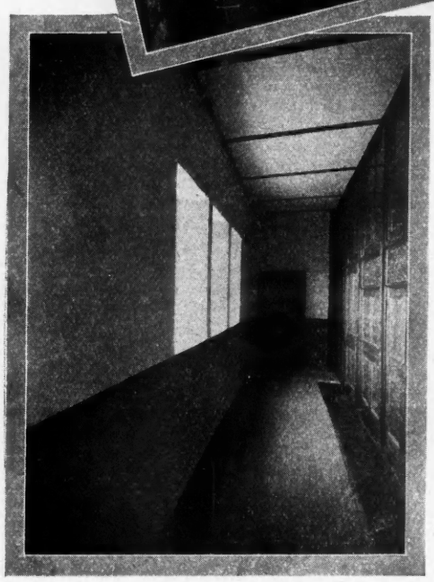

HOW TO CURE DAMP WALLS

"I am able to assure you that my clients are very pleased indeed" —so wrote the architect, F. W. Anderson, of Torquay, when giving us permission to publish these photographs, and the two views taken after the completion of the work show the very good reason for this satisfaction. The outer walls were of good solid masonry, two feet thick, but this was not sufficient to keep out the driving rains, and the deplorable condition they had reached is clearly seen in the other photographs taken before the work was commenced. This work consisted of stripping the old plaster from the interior surfaces of the walls, and replastering with two coats of sand and cement made completely impervious by simply adding 5 lb. of 'PUDLO' Brand waterproofer to each 100-lb. of the cement, finished with a skimming of gauged lime putty and sand setting stuff, thus providing a porous surface which prevents condensation. The specification was the same as that used with equal success in many hundreds of similar cases—often upon the recommendation of sanitary inspectors who would otherwise have been forced to condemn the buildings as unfit for habitation. If you are interested, ask for Specification 4.B and a copy of the leaflet "Weatherproof Walls."

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This British product has been specified by eminent architects for over a quarter of a century, and its use for the remedy of dampness in existing walls is recommended in the leaflet issued by the Council for the Preservation of Rural England for the guidance of property owners. If you have trouble with dampness, or wish to prevent it, write for the Handbook of Cement Waterproofing—post free.

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THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

Vol. CLVII DECEMBER 15 1939 No. 5054

THE R.I.B.A. MEETING

SEVERAL important announcements concerning the war-time activities of the R.I.B.A. were made by the President (Mr. E. Stanley Hall) at the second informal meeting of the Institute held on Tuesday afternoon, a report of which appears on page 818. These may be briefly summarised as follows:—

B.I.N.C. Report to Minister of Supply. The Report by the B.I.N.C. Special Committee, under the chairmanship of Mr. George Hicks, M.P., has now been sent to the Minister of Supply. The Committee has urged the restarting of work not likely to hold up the Government building programme.

Contacts with Government Departments maintained, but discussions of a somewhat confidential nature.

Insurance. A scheme based upon insurance, prepared by the British Chambers of Commerce, is now under the consideration of the Government.

Reserved Occupations. Age may be raised in the near future.

Contracts. A revision of the 1939 Form to make it applicable to war time has been approved and will be issued shortly.

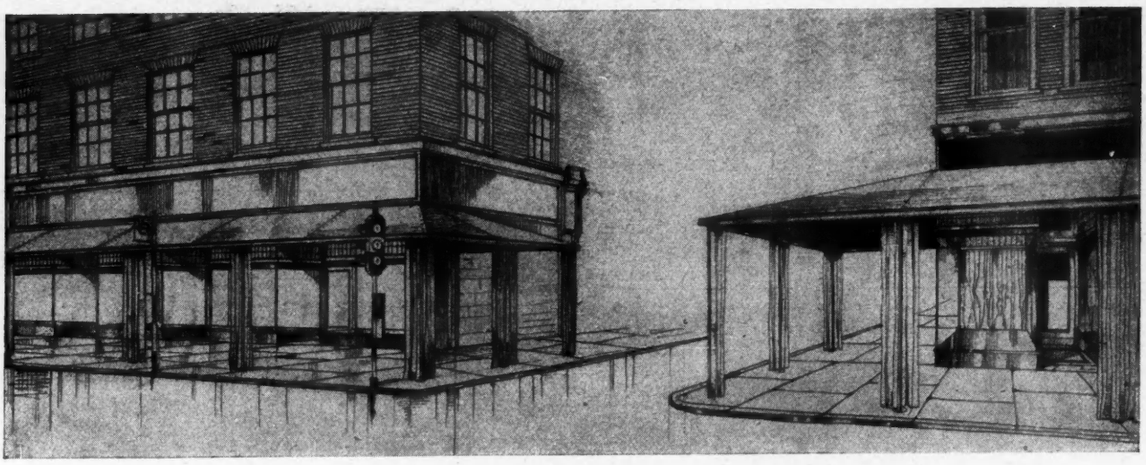
Research. A small Committee, consisting of Mr. H. M. Robertson, Mr. Goodhart-Rendel and Mr. R. A. Duncan, has drawn up a comprehensive report on lines of investigation of and research into immediate and future problems. Heads of investigation to be distributed to study groups.

The President's elaboration of these announcements, brief though it was, was sufficient to indicate the great amount of constructive thought and hard work that must have been put into the Institute's activities since the outbreak of war.

The meeting itself, though none too well attended, was an extremely lively one. There was a good deal of criticism, much of it relating to the hour at which the meeting was called (3.30 p.m., to suit the convenience of country members), and to the inability of such meetings to pass resolutions. On the first point the moderate attendance would seem to show that afternoon meetings are not convenient for a large part of the membership, and we feel that the experiment of an evening meeting might now well be tried. On the second point, the President explained that the passing of resolutions at such meetings was contrary to the by-laws, the amendment of which, to secure this privilege, would have to be approved by the Institute Council and sanctioned by the Privy Council; so, presumably, members will have to be content to regard these meetings as opportunities only for discussing the policy and activities of the Institute and for making criticisms and suggestions.

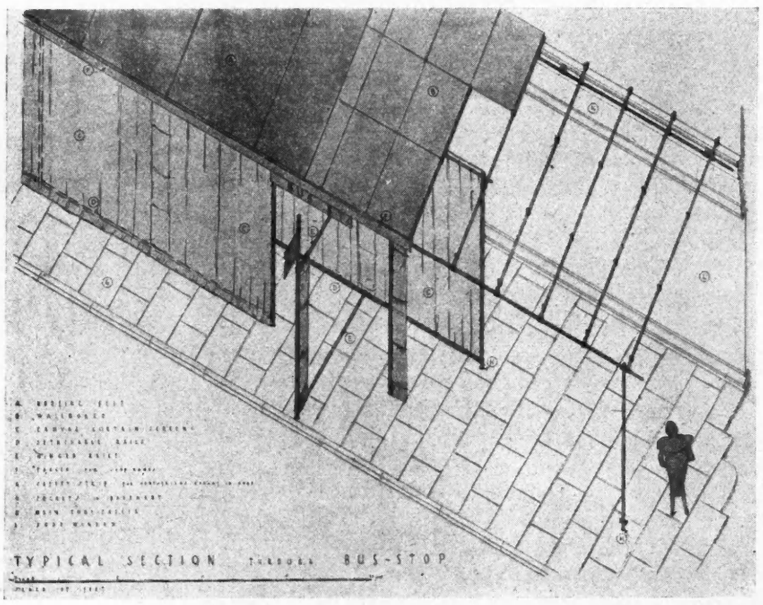
Criticisms and suggestions were sufficiently forthcoming on this occasion, as will appear from a perusal of the condensed report of the proceedings given in this issue. There would seem to be a distinct feeling among the younger and particularly the salaried members that the policy of the Institute is not so constructive and forceful as it might be. We doubt, however, whether the difficulties of the present situation are sufficiently realised. The plain facts are that the architectural profession is only a comparatively small part of the building industry, and that the R.I.B.A. is not in a position to dictate a building policy to the Government. By standing in with the other branches of the industry, however, and recommending the restarting of civil work that is not likely to hold up the Government building programme—work, moreover, that by stimulating employment will relieve the nation of a burden it can ill afford to bear—the R.I.B.A. is pursuing a course that is more likely to produce results than any policy having the appearance of self-interest.

If civil building can be restarted on any considerable scale (and there is plenty of evidence to show that it can and should be), the architectural profession must automatically benefit, especially the assistants, many of whom have been badly hit by the war.



VIEW OF TEMPORARY ARCADING, SHOWING SIDE SCREENS OPEN.

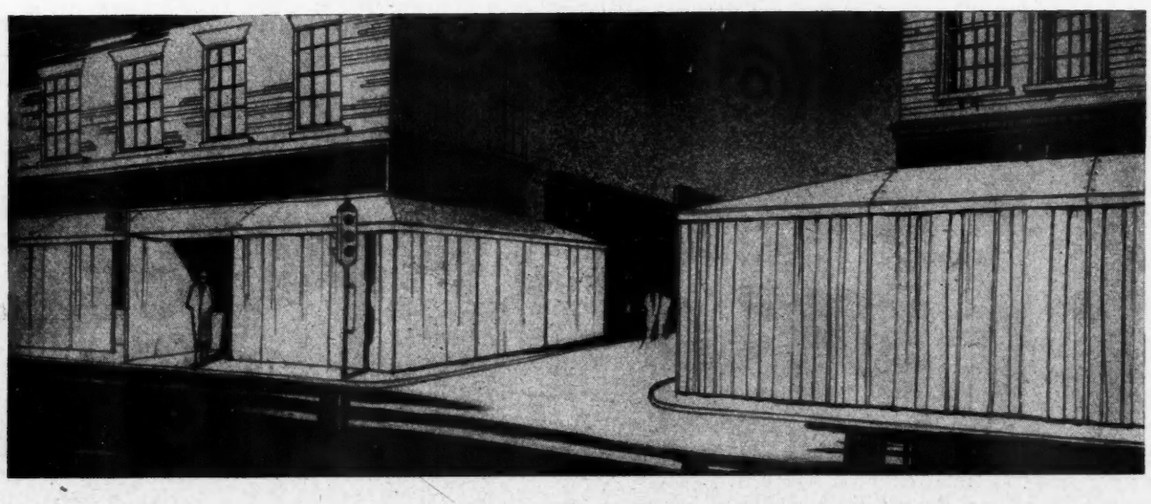
A SCHEME FOR TEMPORARY ARCADING, OXFORD STREET, W.



A CONSTRUCTIONAL DETAIL.

DESIGNED BY MR. DONALD HAMILTON, L.R.I.B.A., F.S.I.

This scheme has been designed to enable shopping to continue under " black-out " conditions in Oxford-street, W. At present only the north side of the street, from Marble Arch to Tottenham Court-road, is under consideration. Further particulars are given on page 830.



VIEW SHOWING SIDE SCREENS DRAWN.

NOTES AND NEWS

The Clarendon Hotel, Oxford.

We regret to learn of the impending closing of the Clarendon Hotel, Oxford—a hostelry of pleasant memories. An inn has been on its site since early in the 14th century. It has been acquired by Messrs. F. W. Woolworth and Co.

Regret for the past is not lessened by a certain fear lest the amenities of the Broad be injured. We hope that the new owners will have especial care to deal sympathetically with the site and to erect their building in consonance with its surroundings. The Oxford Preservation Trust will be glad, we are certain, to give all the advice and help within their power.

Another point is made in a letter to the Press by Dr. R. W. Livingstone, Librarian of Corpus Christi College, who points to the present congestion of the High and Cornmarket as an existing reason why shopping centres should be decentralised, and adds that the turning of the Clarendon into a store can only result in centralising still further and in drawing still larger crowds to the centre of the town, whose traffic problem is already notorious.

A.A.S.T.A.: Annual General Meeting.

The annual general meeting of the A.A.S.T.A. is to be held on Saturday, December 16, at the National Trade Union Club, 12, Great Newport-street, W.C.2. The business meeting will begin at 2 p.m. promptly and will be followed at 2.45 by tea and light refreshments. At 3.15 " The Building Industry, the Professions and the War " will be discussed at a meeting open to all architects, surveyors and others connected with the building industry.

The speakers at the open meeting are to be Professor W. G. Holford, A.R.I.B.A., M.T.P.I.; V. L. Nash, A.R.I.B.A., President of the A.A.S.T.A.; and O. W. Roskill, industrial consultant. Contributions to the discussion will be welcomed.

Consultants for Westminster's A.R.P. Works.

Westminster City Council have made the following appointments in connection with their air-raid shelter works: Council's housing estates, Mr. A. J. Thomas, F.R.I.B.A.; industrial buildings, Mr. T. P. Bennett, F.R.I.B.A.; and surface shelters, shelters in institutions, hostels, etc., Mr. Stanley Hamp, F.R.I.B.A. Messrs. Rendel, Palmer and Tritton have been engaged as consulting engineers for certain works.

The Park-lane Area: A Suggestion for Replanning.

A suggestion for the improvement and remodelling of Park-lane, Marble Arch and Hyde Park Corner is contained in a pamphlet issued by Mr. H. E. Mendelssohn, town planner, and Mr. Ernest Schaufelberg, architect, from 3, Connaught-place, W.2. It is proposed that by setting back the railings which divide Park-lane from the Ring-road from Hamilton-place to Stanhope-place, Park-lane could be transformed from its present 40 ft. to a boulevard over 250-ft. wide; that, by rearrangement at Marble Arch, the open space could be transformed into a spacious *place*; and that by similar remodelling at Hyde Park Corner traffic conditions at that spot could be improved. Two plans are given.

In summing up, the authors state that the proposed replanning, in addition to being an advantage in normal times, would be of considerable benefit in times of emergency.

Miners' Welfare Committee: Building Progress.

Mr. Lloyd, Secretary for Mines, speaking at the annual conference of district miners' welfare committees, held at the Board of Trade, said that he had gladly signed an Order transforming the Miners' Welfare Committee into the Miners' Welfare Commission. That was not a mere change of title; by making them a body corporate it enabled them to hold property and to enter into contracts, and he trusted that it would result in even greater efficiency. The immediate reason for the introduction of the recent Bill was the necessity for providing additional funds for pithead baths by raising the levy from ½d. to 1d. a ton. In spite of war-time difficulties it had proved possible not only to make progress with the building contracts already let, but to enter into new contracts for pithead baths.

It appears that contracts placed last year amounted to £649,000, and preparations had been made to increase the programme to about £715,000 this year and to £840,000 next year. Their contracts this year had already reached £522,000. The total number of installations of pithead baths completed or under construction at the end of 1939 would, it was estimated, be 344, and the number of men accommodated would be 428,000.

" Green Belt " Acquisitions, Essex.

Essex C.C. has agreed that, subject to the consent of the London County Council, the Minister of Health be requested to incorporate in the Romford No. 1 Planning Scheme provision whereby an additional 86 acres or thereabouts of land, being the remainder of Hill Farm, Noak Hill, are scheduled as reserved for "green belt" purposes. The Council has also accepted the London County Council's offer of contributions of £8,406 and £10,716 respectively towards the cost of acquiring for the purposes of the Essex section of the " Green Belt " (*a*) approximately 170 acres of land forming the major portion of Pyrgo Park and land adjoining, and (*b*) approximately 517 acres of land comprising Boyles Court and Warley Estates, Brentwood.

The Institution of Gas Engineers: Publication of Papers.

As, owing to the war, the eleventh autumn research meeting of the Institution of Gas Engineers has been cancelled, a number of communications which were to have been read have been printed and are available to members upon application to the Secretary, 1, Grosvenor-place, S.W.1. A written discussion of these papers is invited and will be published by the Institution.

Church of St. Antholin, Peckham: A Wren Reredos.

The Church of St. Antholin, Peckham Rye, has been reopened after extensive restoration by Mr. Martin Travers. When St. Antholin's, Budge-row, E.C., was demolished in 1875, the wooden reredos, designed by Wren, was put in the new church at Peckham. It suffered a little in the process, and Mr. Martin Travers, with the consent of the advisory committee of the diocese, has restored it to its condition in 1875.

Exeter Cathedral Reredos: Removal to Heavitree.

The elaborate reredos in Exeter Cathedral, which was removed a few months ago, following an examination disclosing its unsafe condition, is to be placed in the parish church of Heavitree, Exeter. Last May the Dean of Exeter informed a meeting of Friends of the Cathedral that Sir Giles Scott had reported that the reredos was unsafe, adding that it was of poor design, and, as its reconditioning would cost a considerable sum, he felt that the better policy would be to remove it and replace it with something more suitable for the position it occupied.

Professional Announcement.

Mr. Edwin Tweedy, M.B.E., F.I.A.S., quantity surveyor, is conducting his practice after December 20 from 14, Cowper-road, Southgate, N.14. ('Phone: Enterprise 1766.)

IN 1914.

Reprisals in Kind.

Referring to the report that the public buildings of Brussels have been undermined for destruction, M. Maurice Maeterlinck writes to the *Figaro* to make a suggestion for their preservation. Why, he asks, should not the Allies decide upon hostage German towns which would answer stone for stone for the cities of the Allies? If Brussels were destroyed, Berlin would be razed to the ground, Hamburg would answer for Antwerp, Munich for Ghent, and Nuremberg for Bruges. . . . It is impossible to accept this point of view. Are not all fine old buildings, wherever situated, the heritage of all mankind, and perhaps the most cherished of the possessions of our common civilisation? Would civilisation be the richer for the destruction of Munich? Would humanity be consoled for the loss of Bruges by the additional and equally grievous loss of Nuremberg? Is Nuremberg the less precious because it happens to be in Germany, and has not architecture suffered enough already? Is there any reason for demanding such satisfaction for injuries already sustained as will inflict still further injury, not only on ourselves, but on every civilised nation in the whole world, whether combatant or neutral?

From *The Builder*, December 18.

THE CHRISTMAS HOLIDAYS.

Owing to the holidays, all matter intended for publication in our next issue should reach this office by Monday morning next, December 18.

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

The Future of Building.

TO THE EDITOR OF *The Builder*.

SIR,—The provision of satellite towns outside large cities would be a definite solution of many of the problems which now harass the minds of city councillors. Enormous cities like London are suffering to-day from fatty degeneration of their arteries, which are the trunk roads. The recent Bressey report has evidently been shelved, and would take years to carry out, even if one competent authority took command. London could well reduce her population and provide, say, 40 satellite towns of 100,000 inhabitants each, within a perimeter of 50 miles of Charing Cross. Each town would be a self-contained unit, and the sites would be carefully chosen, with a large-scale model made showing all the contours and natural features to be preserved. This is the best way to study such a scheme in three-dimensional form, but only a Government Department like a Permanent Town Planning Commission could afford the time and expense necessary before the most suitable plan could be agreed on.

In some cases an air survey would be helpful. Once the layout was agreed upon, fully detailed plans and sections would be drawn out in close collaboration with architects and engineers, then contracts made with building firms. A full staff of quantity surveyors would control materials and prices. Choice of materials, with laboratory tests if necessary, would remain with the architects, for many a building project has been ruined by badly selected bricks, timber, paint, etc. Sanitary and other fittings would be the best of their respective kinds, and British manufacturers can supply these in first-class design and quality if paid a fair price.

The science of modern town-planning lays down the proper allocation for civic, shopping, residential and factory areas. Railway stations, aerodromes, playing fields and other services are also conveniently sited. The present appalling destruction of child-life on the roads would be reduced to a minimum, for children would have safe gardens set aside to play in, instead of dangerous streets, which in many cases are all that are available to-day. Beautiful buildings would in time induce civic pride, and there would be proper disposition for cultural pursuits by the provision of an art gallery, museum and public library in every town, possibly set in an adjacent park surrounded with well-kept lawns and foliage. Town planning is past the experimental stage, and is now a definite art linked up with architecture, engineering and landscape design. Industrial sites would develop along natural lines, with plenty of room for expansion. Schools would have proper aspect, ample sunlight and near-by playing fields. Natural features and buildings of archæological interest would be incorporated in the layout and preserved. In these days of possible air-raids it would be advantageous to spread the population, making evacuation schemes easier or even unnecessary.

All town-planning experts such as Sir Raymond Unwin condemn flats for the working classes (and this applies to others also), as detrimental to social and child life. For the sake of convenience there have to be so many irksome restrictions, but what is serious is that children cannot play properly outside. For family and communal life the ideal dwelling is either semi-detached, blocks of four, or maximum blocks of eight cottages with a garden attached to each. The importance of a garden for each family cannot be minimised. In overcrowded London and other large cities we still see great multi-storied flats erected, but in a well-planned satellite town this would be an anachronism. There must be proper allowance for size of rooms, and present standards are too low; 120 sq. ft. for a sitting-room is too small, and 200 sq. ft. is nearer the mark. Bathrooms at 4 ft. 6 in. by 5 ft. are no longer permissible. These may be details to some, but to those who have to live in such places they are of practical importance. Hygiene is a vital matter when it comes to cubic contents, and 600 cub. ft. per head is a bare minimum.

All this shows the urgent importance to the very life of the nation of a bold, forceful and imaginative policy of town planning with long-term action leading to the final extinction of the slums, and an adequate supply of livable houses for the mass of the population. This is a definite task for the architect and engineer working under State control, employing all the best brains available; to leave so much of this to private enterprise is sheer lack of responsibility. The speculator has been making an unjust profit out of the very life-blood of the nation, and in many cases rent charged for shoddy houses is exorbitant. He is exploiting a situation which can only be described as deplorable. The building societies cannot escape criticism for aiding and abetting much of this. They cannot be absolved from blame, for they could insist on higher standards of building, the compulsory employment of an architect, and could refuse loans for poorly designed housing schemes. In the long run this would be in their own interest, but, in any event, the public should be protected from their apparent ignorance. The appointment of a Permanent Town Planning Commission would arouse public interest, for "without vision, the people perish."

Finally, the building industry must put its own house in order. The past policy of "snatch-as-snatch-can" is the rule of the jungle and must be replaced by one of co-operation. Instead of 50 associations existing to confuse the public mind, there should be only one authority to issue regulations. The various societies should be co-ordinated into a General Council which would be the Parliament of the building industry, with representatives from each, which would lay down a rigid code for building which would not be departed from in any part of the country. This would give complete confidence to the public, which may be lacking in some quarters to-day. Building is one of the chief trades in the country, and much of the economic strength of the nation depends on its activities. A Board of Inventions might well be set up to investigate the supply of equivalent materials, and new methods of building technique made more widely known. Here is a wide field for exploration, but the knowledge must be made available to all. The watchword is "Co-operation or chaos."

J. E. RHIND,
A.R.I.B.A., Dipl.Arch.(Aber.).

Weybourne, Surrey.

COMPETITION NEWS

Mixed Senior School, Dudley.

The award has now been made in the competition for a senior mixed school at Halesowen-road, Dudley, for the Education Committee (limited to architects practising in the counties of Warwick, Worcester, Hereford, Salop, and Stafford). Mr. S. N. Cooke, F.R.I.B.A., the assessor, has made the following placings:—

First (£150).—Messrs. Hickton, Madeley and Salt, AA.R.I.B.A., Walsall.

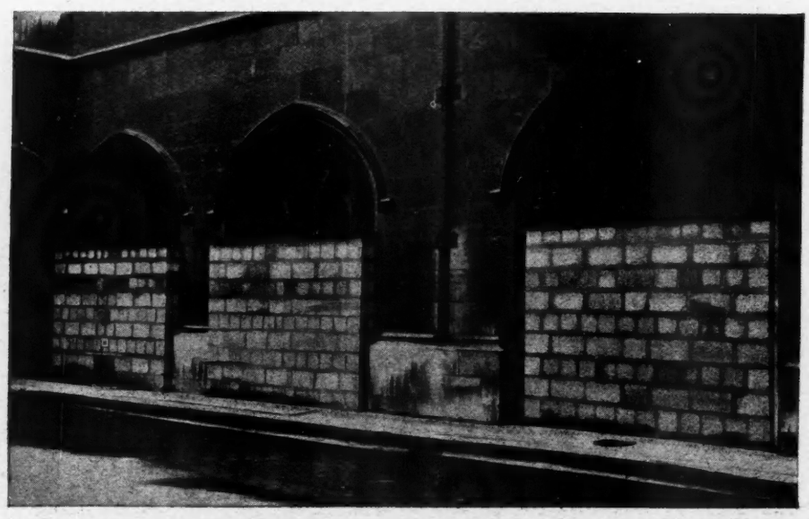
Second (£100).—Messrs. Redgrave, Son and Clarke, Coventry.

Third (£50).—Messrs. Coton, Harrison and Thomas, Smethwick.

The designs submitted by the undermentioned firms were highly commended: Mr. J. Blackburn, Old Hill, Staffs; Messrs. A. Edwards and Son, Birmingham; and Mr. Alfred Parker, Worcester.

There were thirty-seven designs submitted, and arrangements have been made for them to be exhibited at the Dudley and Staffordshire Technical College, The Broadway, Dudley, during the week commencing January 8 next.

The winning design is illustrated on page 826. Assessor's report on page 827.



A use for concrete blocks for Air Raid Precautions purposes is shown above. The scene is the Houses of Parliament.

WAR-TIME BUILDING PRACTICE

By R. Cotterell Butler, A.R.I.B.A.

6.—THE DEVELOPMENT OF MATERIALS AND CONSTRUCTIONAL SYSTEMS AS SUBSTITUTES FOR TIMBER—II.

FABRICATION SYSTEMS.

ALTHOUGH in comparing mass construction with frame-and-panel systems, in the section of "Billeting Accommodation" dealing with the structural aspects of the design of emergency units, it was pointed out that mass construction was predominantly a site process, and only capable of minor prefabrication; this was, of course, but a comparative analysis.

Any preformed material, whether it is as small as a brick or even smaller, is, of course, a prefabricated unit; and from a theoretical point of view, a brickwork structure is, therefore, to a certain extent an example of prefabrication. However, in practice the term is more usually employed to describe structures involving a low percentage of site work, and as the size of preformed unit is decreased, the site work necessary for the system is, of course, correspondingly increased.

In general, there are two fabrication methods which may be employed in the production of mass structures for emergency building: *in situ* construction, and preformed unit construction. The latter may be carried out both by manual labour alone, or by a high degree of mechanisation.

PREFORMED-UNIT SYSTEMS.

(*a*) MANUAL.

The assembly of preformed building units by man-power is, of course, the traditional English form of construction, and in normal times its characteristics are admirably suited to a wide range of structural problems. Ample skilled labour is available in this country for production on almost any scale, and, as we have seen, suitable material is equally readily obtainable. Where emergency building is concerned, however, the proportion of skilled labour required for production on the site is certainly high, and the degree in which it is dependent upon the efficiency of the individual workman is certainly considerable.

The size of the preformed unit used is necessarily limited, but in the design of light forms of structure, having small wall thicknesses and rarely exceeding one storey in height, considerable increases in size are practicable.

Provided every effort is made to keep the preformed unit as large as possible, and provided adequate time is allowed for construction, the use of man-power alone—where plenty of the appropriate material and labour is obtainable—is capable of achieving satisfactory results.

The great advantage of manual assembly—the ability of the designer to admit considerable variations in pattern—is, however, lost where war-time building is concerned, standardisation of design being so easily obtained that the natural offspring of standardisation (mechanical production) will usually offer better results.

(*b*) MECHANISED (SITE MASS-PRODUCTION.)

The main function which the use of mechanical plant can fulfil in the construction of buildings composed of preformed elements is the carrying of weight beyond the capabilities of man-power.

The primary advantage to be derived from this facility is that the dimension of the preformed unit can be considerably increased, and two important advantages may thereby be obtained:—

(1) The amount of jointing *in situ* may be reduced.

(2) The assembly of the preformed units as they arrive from the factory may be carried out other than at the position of erection.

The advantages of cutting down jointing operations have already been fully discussed here, and it is sufficient to point out that, by the use of mechanical plant for erection, the greatest saving in jointing is to be obtained.

The development of "off site" assembly is probably the most important contribution which war-time practice may make to building technics. In principle, it is essentially a site prefabrication system, possessing many of the advantages of factory mass-production.

By enabling a prefabricated wall unit to be assembled at a convenient point on or near the site, under cover and under factory conditions generally, the building operative may work more efficiently, and the rate of production may be better controlled than where every small unit has to be erected at its ultimate destination. Owing to their low resistance to shock and tensional stresses, preformed units for mass construction frequently present transport difficulties quite apart from matters of density. By transporting preformed units of the largest convenient size to the site works, and there assembling them into building units of finished size, this disadvantage may be overcome, and the efficiency of the structural system may be brought nearer to that of frame-and-panel types.

In addition, where large developments are concerned, the actual fabrication of raw material into appropriate building elements may be carried out in the site factory. Building units may be preformed at short distances from their ultimate destination, and the method of conveyance between the "factory" and the site may be arranged to avoid any stresses, other than ones similar to those the unit will have to withstand in the structure, being brought to bear upon it.

The operation of such a system is probably best explained by an actual example, and the use of

precast concrete building units provides an excellent instance.

Assuming adequate supplies of raw material—Portland cement, sand and aggregate—at a reasonable distance, shuttering for the casting operation necessary may be situated on a corner of the site near to the transport line (road or rail), and the location of the mixing and feeding lines may be laid down permanently.

Light unstressable aggregates may under these circumstances be incorporated in the "mix," to increase the insulation properties of the unit. This is an extremely sound principle in need of development. The normal method of practice is to prepare an aggregate containing cork, bark, wood pulp or other similar material, the unit being formed by a vibration system during which the lighter parts of the aggregate rise to the surface and form an insulation layer, this layer being at the internal face of the unit when assembled.

In addition to incorporating light material in the aggregate, chips of granite or other heavy material may be included. On vibration this is deposited on the opposite side to the insulation layer, forming a weather-resisting skin. With certain mixes, the shock resistance of the unit may be much too low to allow it to be transported in the normal way, yet its strength may be more than adequate for building purposes.

The same considerations apply where reinforcement is to be included. While a building unit may be adequately reinforced for its position in the structure, transportation stresses may require the addition of considerably more steel, as "this side up" cannot always be guaranteed. By site-production this additional reinforcement may be dispensed with entirely.

The application of horizontal casting is, of course, quite impossible where production of the unit has to take place in the building position, and this is but another of the many advantages of site-prefabrication.

Similar in its application to site-prefabrication, although different in principle, would be the construction of building elements, composed of preformed baked clay blocks, or even normal bricks in the site works. The units would arrive at the works in the maximum sizes convenient; they would then be jointed together into wall units by the operative working under cover, and with every facility for rapid production. Instead of moving laboriously around the building, he would rarely have to change his position, the material being brought to him, and the finished units being removed to mature.

Naturally, the strength of the joints in an element designed for a vertical position would be quite low were they be be subjected to horizontal transport, but with site-production, adequate means for vertical transport over the short distance between the works and the building site may be conveniently arranged.

In the case of large-scale emergency construction—and with this we are here concerned—there are no insuperable difficulties in the arrangement of appropriate mechanical transport. The site should, of course, be as level as possible, and the building lines should run as continuously as possible. A gantry system running either on rails or caterpillar wheels will, in most cases, be the best method, although lighter forms of transport, such as truck and derrick (if necessary attached to the truck) may with certain types of material be found adequate.

The initial cost of mechanical plant would, of course, be high, but compared with the overall increase in efficiency obtained and the rapidity of production which would result in its use for large-scale national undertakings, would be well worth while.

IN SITU SYSTEMS.

The degree of mechanisation necessary in order to employ *in situ* systems for emergency building work is usually somewhat less than site mass-production systems require. The system is to an extent more flexible in this respect. The use of efficient mixing plant would, of course, be an absolute necessity, but the same degree of site transport would not be required. Dependent as this system is (in common with all other types having a low prefabrication value) upon the site conditions under which the operative works, its overall efficiency for large-scale operations of an urgent nature is certainly less than site mass-production. However, its flexibility may in some instances provide a solution to a building problem which, while insufficiently extensive to warrant either the expense or transport of equipment for site-mass-production, demands a higher efficiency ratio than that provided by the manual assembly of preformed units of small size.

The technique of *in situ* construction has been well developed in this country in connection with normal building practice, and its use for emergency building would not differ sensibly from this. The justification for the use of more highly mechanised shuttering equipment provided by the scale of emergency building operations, would enable greater efficiency to be obtained than is usual, and the standardisation of the design units required would increase this possibility.

The materials to be employed are necessarily somewhat limited, and in general would consist of a Portland cement mix with various aggregates.

In the selection of aggregates for emergency building production, greater latitude may be observed than in peace-time practice. For one thing the amortisation period of the building will usually be less, and in addition—owing to the usual high limitations—the mechanical strength of the mix need not be so great.

The use of lime-rubble mixes will always remain a possible alternative to Portland cement, but the low strength and long period necessary for maturing, will not encourage their use except where these factors are compensated for by an exceptional abundance of natural material being available.

(To be continued)

The previous part of this article appeared in our issue for December 8. Other articles were :—
October 13.—"The Field of Activity."
November 3.—"Billeting Accommodation — General Planning and Layout."
November 10.—"Billeting Accommodation—Structural Requirements, Design and Structural Systems."
November 17.—"Billeting Accommodation—Equipment and Fittings."

THE ARCHITECT'S TASK

STATEMENT BY THE PRESIDENT OF THE R.I.B.A.

It has been suggested that I should write some message to the profession in place of an inaugural address. I would have wished that it could have been one of greater cheer. The times are out of joint; and there is none of the full-dress flutter which usually accompanies the President's first night. The contrast is all the greater because for the last two years the Journal has published one after another the series of brilliant addresses which my predecessor has delivered both at the R.I.B.A. and at our conferences and at various meeting of the Allied Societies. I suppose that in the whole history of the Institute we have never had an orator of such wit, such encyclopædic knowledge and such puckish humour as Mr. Harry Goodhart-Rendel. It was rightly said of him that he should have been the last of the line of Presidents because it is so impossible for anyone adequately to succeed him.

Yet, like the runner in the torch-race, he has finished his lap and handed on the torch to me; if in him you witnessed the dash of a quarter-miler, in me I fear you will recognise the slower plod of the long-distance runner. Perhaps I have some claim to that title, since I first became an Associate Member of Council in 1913—the year before the last Great War—and my service to the R.I.B.A. has been almost continuous since the last war ended. Before me, my father, "Edwin T.," whom many older members still recall with affection, became an Associate in the year of my birth, and was Vice-President two years before I was elected an Associate. His first work for the R.I.B.A. was on the drafting of the Charter and By-laws of 1887, and the term of his Vice-Presidency led up to the Charter of 1909, an important step towards the registration of architects.

You must forgive this personal note, but it means that my father and I have between us seen from a close angle the history of the R.I.B.A. during the whole of the second half of its career. One is tempted to look back and pay tribute to the great names of this era; but the war has intervened. and once again there seems likely to be a cleavage between the past and the future. What we have done is a matter of academic interest; what we are going to do is a matter of vital importance. One reaction that emerges from the present time of inaction in the architectural world is the realisation that there is a great amount of architectural talent going begging, and behind it is a great desire to be of service. In spite of all that the Institute has done for many years to make known to the public the services that only an architect is trained to fulfil, the powers that be have failed to realise his value. They seem unaware that he is anything more than a draughtsman; they and the country with them have lost the advantage of skilled planning and co-ordination which is the architect's chief asset.

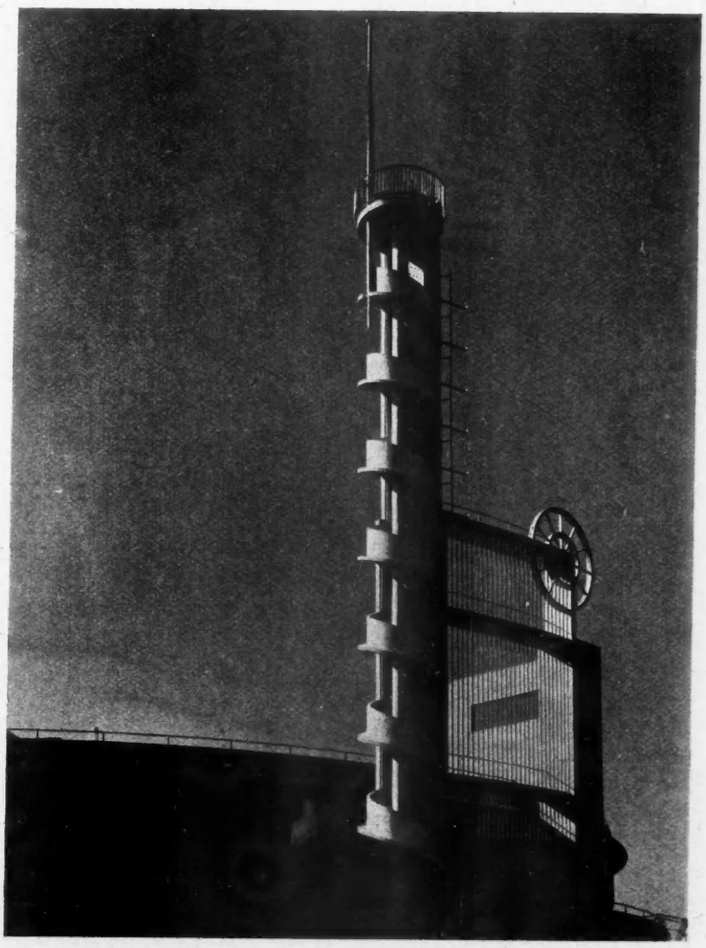
Architects and Reconstruction.

Architects yield to none in their keen desire to help to win the war. If, as seems likely, the "reserved" age will be raised, they will join up in whatever national service is open to them, just as readily as they did twenty-five years ago. But while they are serving, those of us who are too old have a duty not only to them but also to the coming generation who will have to build again the fragments of a twice battered age. How best to do this is the task of the R.I.B.A., and we are engaged on adjusting ourselves to this task.

Our Place in the Building Industry.

In the first place, we must line up with the other members of the great building industry—engineers, surveyors, builders, operatives and merchants; we are all interdependent on each other, and none can function properly without the services of all. Even during the war period it is essential for the country's good that this great industry should remain vitally in being. In normal years its total annual output is £600,000,000, and it gives sustenance to nearly 2,500,000 persons. It contains the most skilled craftsmen in the world. We are endeavouring to ascertain the estimated requirements in labour and materials for all war work of every description. If it reaches an annual expenditure approaching the figure given above, then it will be clear that the whole building industry will be wanted for such efforts. Hardships must occur, and some luxury trades must stand idle or turn to other employments. But if there is any substantial margin between war requirements and the normal output of the building industry, we are urging that something should be done to keep that money in circulation, to prevent the waste of idleness, of loss of goodwill, of reputable firms having to close down. We have been requested to keep our people in our employ; we have been warned that our incomes will be taxed to the limit. We are entitled to try to save the skill and talent among professional men, employers and operatives. If the effects of the last war are any criterion, prices will almost certainly soar at the end of the war period, and essential buildings like schools and hospitals may cost more than half as much again as at present prices. If, therefore, such works can be advanced during the war, the country will be the richer at the end; and in any case it is most important to remember, in planning for that resumption, that architects, engineers and surveyors must prepare their work many months ahead of the restarting of actual building operations.

That is perhaps our immediate task—an endeavour to do all in our power to get the building industry on all its legs



THE NEW CASINO, BLACKPOOL.

This photograph of Mr. Joseph Emberton's Blackpool Casino was shown by Mr. C. Stewart Chaplin at the recent Exhibition of Photography in Commerce and Industry.

as soon as possible. Next, we must do all that can be done by forethought to prepare for normal times. This problem is difficult because we do not know what the havoc of war may leave. Of this, however, we may be sure: there will be a great break between post-war and pre-war standards, and a different outlook on life generally. Not only that, but materials will be scarce and prices will be sure to rise steeply; and it behoves us to prepare for such changes.

In our efforts now we must try to anticipate these difficulties. We are in close collaboration with the Watford Building Research Station in studies of this kind; and we are hoping that our research will investigate all possibilities of new materials and methods which may save expense.

Evacuation Problems and Solutions.

Other problems that we can foresee are those arising from the evacuation scheme. After three months working of the boarding-out system, the difficulties and shortcomings are becoming apparent. Clinics and dispensaries, nurseries and central dining-rooms are indicated as a likely necessity. It is vital that any proposals to meet these needs shall fit in with a long-term policy such as holiday schools and holiday camps, so that the work now carried out may be of permanent value. In this matter we are in touch with the Ministry of Health; we have asked to be allowed to help in any architectural way to solve the problems which have been presented to them. In the matter of air-raid precautions, those that have been taken have yet to be tested. Possibly they may be found to be adequate; possibly more invulnerable shelters will be required. Looking towards the future, I am doubtful whether air-raid precautions, as we understand them, will be wanted. Either this war must be carried to such a point that it may be patent that no future aggressor will be tolerated, or the destructive elements will be made more and more powerful, so that any standards that we set to-day would be quite out of date and useless in the future.

Planning and Reform.

As an alternative, we can devote ourselves to the wider constructive problems of peace. Is there a reasonable alternative to the large cities and massed populations? We know their disadvantages—overcrowding, lack of air, traffic congestion and the like. We know the causes in the past—convenience of centralisation, nearness to ports and railways, etc. But we have been forced to some extent to a centrifugal policy, and it would be well to see whether such a policy cannot be made permanent. When one remembers that the average traffic speed in London is eight miles an hour, while the average speed in the open country is five times as great, we can discount some at least of the advantages of close centralisation. One is tempted to hope also that the emergency migration of children to the country may encourage among town dwellers a love of country life. These and similar problems we are hoping to study. A small nucleus committee is engaged in drawing up a programme for investigation. They will set a series of tasks for various groups to examine in detail. Such tasks will range from the larger problem of satellite towns, traffic distribution and resurrection of derelict areas, to more intimate investigations of household equipment and economy, design of pottery and glass, information on the relative costs and merits of floor and wall materials and such like; and in building research we shall try to elucidate the mysteries of damp walls, cracks in plaster, peeling and blistering paint, dry rot, and the other bugbears of the building world. The results will be, we hope, of real value in approaching the new constructive era.

Meanwhile, the essential matter of architectural education must go on. It is gratifying to find that all the important schools are carrying on with up to 75 per cent. or more of their normal numbers. I only hope that they will not be crippled by the loss of key members of their staff, because their work is of national importance. At the R.I.B.A. we have just held the intermediate examination for which there were 145 candidates; and there are 163 students sitting for the final examination.

The Architects' Benevolent Society.

In a review of our immediate future, we cannot fail to realise that there will be much hardship and distress among architects, young and old. My letter published in the Journal and other papers appealing for contributions to the Architects' Benevolent Society has already brought in some donations for which we are extremely grateful. One reply from a student deserves to be published in full.

> "During the depression of 1930-31 I had the misfortune to be unemployed for a considerable time, and the letter from the President of the Institute in the current issue of the Journal has reminded me that I received some financial assistance from the fund then opened to relieve need in the profession. In spite of staff reductions owing to the war emergency, I have been retained for the time being on the staff of a local authority, and I should like to show my sympathy in a small way at least with my colleagues who have not been so fortunate. I have therefore asked my bankers to remit to you on December 31, 1939, and thenceforth quarterly until further notice, the sum of £1 10s. If I am able to add to this from time to time I shall certainly do so in thankful remembrance of the time when help was given to me."

It still remains incredible that the total number of subscribers is only about ten per cent. of the profession. All registered architects will shortly be receiving a personal appeal to contribute a special Christmas donation, from which we hope to raise £1,000. I earnestly hope that many members will make that donation an annual subscription.

At 66, Portland-place we miss the normal contacts with our Allied Society members both on the Council and on committees. It has been a great pleasure to see at the Executive Committee meetings four out of the six country members. I have been trying by letters to the Allied Society Presidents to keep them posted in our doings. I am sure of the strength of the R.I.B.A. for national good, and am conscious that this strength rests upon the united efforts of metropolitan and provincial members to combine in stressing the services of our Institute to the public. Quite clearly we must speak with one voice in all our public dealings. Any matters of internal adjustment can be made without affecting our united action.

R.I.B.A.

INFORMAL GENERAL MEETING.

An informal general meeting of the Royal Institute of British Architects was held at 66, Portland-place, on Tuesday, at 3.30 p.m., Mr. E. Stanley Hall, M.A., President, occupying the chair.

The President said that they were again met in an informal gathering to review the present situation and, he hoped, to receive constructive suggestions for the future. Since October 23 [the date of the last informal meeting] it would be seen that the front door was being attended to, under the supervision of Mr. Lovett Gill. The War Executive Committee had met fortnightly, and reports of proceedings had been sent to all members of the Council. The Council itself would meet on January 16. The most important work done was the completion of the report by the Building Industries National Council Special Committee, under the chairmanship of Mr. George Hicks, M.P., which was sent to the Minister of Supply on December 11. Prior to its compilation, Sir Connop Guthrie had attended at a meeting of the Building Industries National Council and had subsequently given information as to the estimated amount of labour and materials likely to be wanted for Government services. That information had enabled the Committee to put forward their views on the position of the whole building industry, and to urge the restarting of work not likely to hold up the Government building programme.

"One of the points emphasised by the Committee," continued the President, "was the extreme desirability of allowing local authorities to authorise architects and quantity surveyors engaged on urgent non-military works, such as schools and hospitals, to proceed with working drawings and quantities for schemes, so that there should be no big time lag when it should be decided that such works could proceed. If this concession is made, it will mean that many local authorities will have work for their architectural staff which would otherwise be postponed.

"With regard to contacts with Government departments, it is difficult to speak of these in very great detail, because they are all more or less of a confidential nature. Discussions have taken place with the War Office, the Ministry of Health, the Board of Inland Revenue, and a representative of the Ministry of Supply. I think that some good will come out of these meetings, as well as from other sources which are bringing constructive suggestions to bear upon the present condition of affairs. I do not think that one can say more about discussions which are somewhat confidential, except to add that the subjects covered were: The architect's part in supervising camps and other Government works; Corps pay for architects in the Royal Engineers; appointments to army troops companies; R.E. appointments as garrison engineers; and research work in connection with evacuation problems. After many interviews with the Board of Inland Revenue, the Board decided to adopt their scheme of taking in extra assistants for valuation of war damage, when such damage occurred, on a monthly basis.

"You are probably aware that the Association of British Chambers of Commerce have put up a scheme to the Government based upon insurance. The

R.I.B.A. was represented by Mr. Moberly, and the scheme is now under Government consideration. With regard to education, 145 students sat for the Intermediate and 163 for the Final and Special examinations, which have been held here since November 1. Mr. Duncan is at work on a programme of exhibitions. The Loan Library is in full working order on the first floor of this building.

The " Reserved " Age.

" So far as reserved occupations are concerned, it seems probable that the reserved age will be raised in the near future.

" With regard to contracts, a revision of the 1939 Form of Contract to make it applicable to war-time has been approved by drafting counsel, and will be issued shortly. Finally, with regard to research, a small committee, consisting of Mr. Howard Robertson, Mr. Goodhart-Rendel and Mr. R. A. Duncan, has drawn up a comprehensive report on lines of investigation and research on immediate and future problems. The heads of investigation will be distributed to study groups, and it is hoped that valuable information may be the result. One of these groups is already in touch with the Building Research Station at Watford."

MR. A. G. LING said that at the last meeting there was general approval of the idea that monthly meetings should be held, and there was disapproval of the rather inconvenient time at which the meeting was held. Some weeks had passed since the last meeting, and the time of the meeting had been changed from 4 o'clock to 3.30. He thought that that change was largely responsible for the poor attendance there that day. The speaker added that members very much resented going back to work after those meetings with no decisions taken and no problems solved. He therefore suggested that future meetings, and even the current meeting, should be given the power to pass resolutions.

MR. COLIN T. PENN, after supporting the previous speaker's contention in regard to the inconvenient time of the meeting, then put forward for discussion and opinion some suggestions which had been put up by the A.A.S.T.A.,* and concluded by saying that the A.A.S.T.A. did not aim at the disruption of the R.I.B.A., which nobody wanted, but he would very much like to see the disruption of the present Executive Committee, as he for one had no confidence in it whatever.

MR. F. R. JELLEY asked for some official assurance that the subscription of members on active service would be remitted, in exactly the same way that the subscriptions of men of his own generation were remitted whilst they were on active service. Turning to the finances of the Institute, the speaker said that Mr. Sylvester Sullivan had actually assured him at the last informal meeting that the R.I.B.A. publications always ran more or less at a loss. Had anyone ever bought a copy of the Kalendar? Had anyone ever heard of anybody wanting to buy a copy of it? Was it not a fact that hundreds and hundreds of them were returned when they were sent out on the last free issue? " Then," continued the speaker, " you have the R.I.B.A. Journal, no doubt a very desirable sort of publication to produce in time of peace, but if you look at the current number you will find that the only thing the editor can think of, after he has told you that there is going to be a meeting for the benefit of the country members at 3.30 in the afternoon, is a sort of apology that he cannot produce a magnificent article on architectural fireworks. Are not there enough fireworks going on at the present time outside this building? Do we really want articles in the official journal on architectural fireworks? Cannot we find something better than that, something that people will read? And, if there is nothing better, cannot we cut it out? "

MR. K. J. CAMPBELL said that he understood that the meeting was called for the convenience of the country members. He did not smell any particular atmosphere of hayricks and turnips about the meeting, and he asked them to look at the number of chairs which were empty. He suggested that it would have been only courteous to call the meeting at such an hour that all could have attended. He invited more attention to the problems of the assistants. He knew that private architects had their own very great difficulties, but the Council had a great responsibility, both to the R.I.B.A. and to the salaried and assistant members of it.

MR. THOMAS BRADDOCK advocated evening meetings, saying that he did not think that they were going to get the country members, even if the meetings were held first thing in the morning! He also suggested that as ordinary meetings of the Institute could not pass resolutions that would direct the Executive Committee, consideration should be given to the possibility of resolutions going out to all branches and organisations connected with the Institute, those resolutions to receive consideration and to be brought to at least one meeting a year at which a resolution which was carried should act as an instruction to the Executive Committee.

MAJOR H. C. CORLETTE suggested that the meeting should get on to some sort of planning that was going to be useful, instead of having more criticism which was simply in the clouds.

MR. J. A. PINCKHEARD criticised the Institute's policy on A.R.P., which, he said, was nothing more than a pale reflection of what emanated from Whitehall. As a result, we must admit that the standing of architects in air raid precautions was very low indeed. He thought that they should try now to redeem the position in which they found themselves, because in three years things were going to become a great deal worse for architects, and not better. The R.I.B.A. should, he thought, say what they believed that a proper A.R.P. programme should be, what sort of shelters should be built, how they should be distributed, and what should be laid down as the general lines for planning air raid precautions, the general lines of co-ordinating the whole scheme, things which should have been thought of at the beginning. They should do the same for evacuation.

MR. THOMAS E. SCOTT denied that the Institute had followed Government policy. For the last 12 months or so it might have implemented that policy, or attempted to do so, but in point of fact it was indirectly not a little concerned with framing Government policy. It was not the Institute's fault that a certain section of the profession might disagree with the decisions; it was probably quite impossible for the Institute to formulate an A.R.P. policy to which all members, young and old, experienced and inexperienced, would subscribe. He thought that the work which remained to be done was not so much in the nature of committee work in framing a brand-new policy as in the direction of building shelters.

MR. P. K. HANTON said that one or two speakers had stated that they thought that the policy of the Institute was one for private architects. He spoke as a salaried architect, and had sat on two Committees for a number of years, and he had seen no evidence of that whatever. He pleaded that they should endeavour to avoid any disintegration of the Institute during the difficult days ahead.

MR. R. A. DUNCAN said that if the Institute did not command the respect that it ought to command, the fault was with members themselves. It was not possible to do with a restricted income what could have been done in peace-time. Every time a meeting was held it cost well over £100. and to call a large meeting at Portland-place cost anything up to £300.

MR. H. J. PYNE said that when they got up to criticise the R.I.B.A. they were not trying to disrupt it, but to make it a healthy body. Sometimes it was necessary to pull a man's teeth out to keep him alive.

MR. E. BERRY WEBBER said that he had been on the Council for a certain number of years, and came to the conclusion that the Council was a rather large and unwieldy body; he was amazed that members wanted to put that machinery back into operation. Quite frankly, he welcomed the existence of a small, active body that could " get on with it."

MR. R. FURNEAUX JORDAN suggested that since there were sections of the profession who thought that they had a grievance there should be set up their own " Royal Commission" to conduct a general piece of research into the whole position of the profession in the national life and its relationship to society.

MR. H. S. GOODHART-RENDEL said that the architect had unfortunately not been able to convince the world in general that he was primarily the planner, primarily the organiser.

MR. A. H. MOBERLY, speaking on the time of the meeting, said that it was quite possible that the Executive Council would have done better to start the meeting in the evening. That, probably, would be tried at another meeting.

MR. A. C. BUNCH, after paying tribute to the work of the President, said that all architects with enthusiasm for and interest in the profession, which had been hit so hard by the economic upheaval due to the war, should endeavour to pull together in the Institute, and send whatever suggestions they had to make to the Institute.

MR. H. P. G. MAULE said that all architects were going to suffer, and to ventilate private grievances now showed a complete absence of the mentality that was going to win the war.

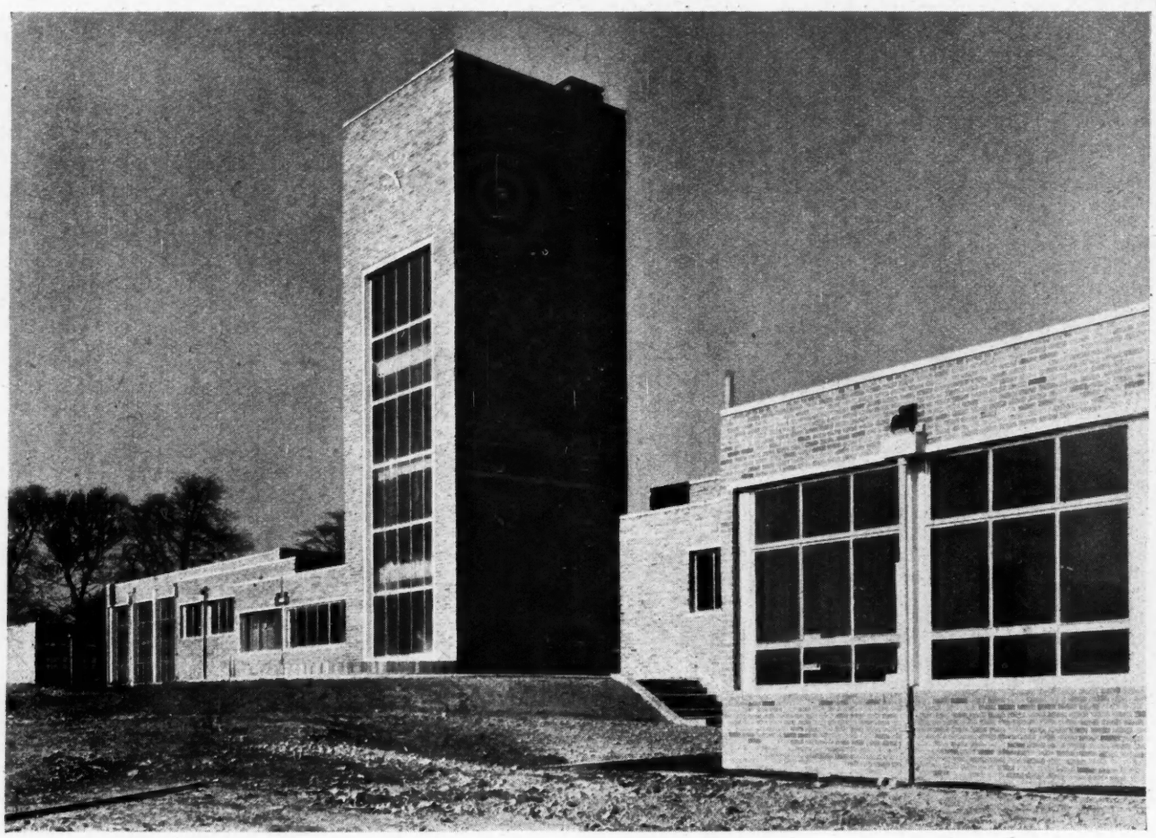
MR. R. D. MANNING said that some Government departments were overworking their architectural staffs disgracefully; they were having to work 54 to 60 hours a week. It was not a question of the last few weeks; it had been going on for many months. Had the R.I.B.A. taken any steps to suggest that no overtime should be worked in those departments whilst there were architects unemployed?

MR. THOMAS E. SCOTT said that the Institute was, in fact, investigating the problem of overtime, and letters had been sent to the Government departments responsible.

MR. HOWARD ROBERTSON said that Mr. Jordan had asked for a sort of Royal Commission. One of the aims of the Committee which was trying to implement the general programme was to deal with the situation of the architect, i.e., the architect within his own field and his relation to other bodies, sculptors, artists and brother professionals of all kinds. When it came to studying the position of the architect he thought that the question of the salaried man could very well find a place in that programme, and, in fact, it must. He had seen a statement in *The Builder* by the A.A.S.T.A. He was sure there must have been grounds in the mind of the writer for making that statement, but he did not believe that it could help in the least. He thought that complaints about the attitude of the Institute were properly ventilated at a meeting such as that or in the form of a formal complaint to the Executive, but the profession were going to split in their effort to get the building industry going, unless they took care, on the rock of an internal schism which would break them up inside before they could really get going.

The PRESIDENT said that one of the points mentioned in *The Builder* was what the Institute had done at the Board of Inland Revenue. One of the great difficulties of the last war was that the inflated Government offices simply sacked assistants wholesale at the end of the war. What the Institute wanted to try to do was to prevent those extra people being taken on into Government departments, for they would have no hope at the end of the war, because the private practitioner would have gone out of practice.

* Published in our last issue.



MAIN FRONT FROM SOUTH, SHOWING TOWER.

CARMOUNTSIDE SENIOR SCHOOL, FOR THE CITY OF STOKE-ON-TRENT.

MR. J. R. PIGGOTT, A.R.I.B.A., CHIEF ARCHITECT. MR. W. I. WATSON, A.R.I.B.A., ASSISTANT ARCHITECT FOR EDUCATIONAL BUILDINGS.

GENERAL. — The Stoke-on-Trent area is largely undermined, and the work now going on in the deeper seams by mechanical coal cutters causes in many cases considerable surface subsidence and is a contingency which has to be taken largely into account in designing buildings of any scale.

The method adopted has been to deal with the problem to meet two circumstances:—

(1) A design to counteract the danger from subsidence in a general way where the particular site is scheduled as a stable one by the Mineral Valuer, and

(2) To adopt special precautions where the site is scheduled as an unstable one.

With regard to (1), the method is to design in a fairly stiff reinforced concrete frame construction where reasonable rigidity is obtained in the continuous horizontal concrete beams and the whole structure stiffened by the reinforced concrete floor and roof slabs. With regard to (2), a very much stiffer reinforced concrete frame is designed with deep foundation beams heavily reinforced, and the building is split up into individual units about 60 ft. long separated from each other by a 2-in. unit gap covered by a copper strip in the form of a U to permit of movement so that the whole building might be described as being an articulated construction.

The extra cost of these precautions has been further increased by the necessity to provide a considerable storage of water, a day's supply being stored in tanks at high level in a water tower at each school. The towers introduced as a utilitarian feature do, however, form a dominant feature of the schools and quite a landmark in the surrounding housing estate.

Carmountside Senior School is a senior mixed school for 480 senior scholars, but is designed as a school for 720 in two separate departments of 360 boys and 360 girls, with certain teaching rooms and one assembly hall, omitted at this stage when it is ranked as a school for 480. The cloakrooms and offices have been designed for the larger school, but the fittings have only been installed to serve the 480 school. The plans illustrate the extension portions.

PLAN.—The school is on a site where special precautions had to be taken, and the position was rather complicated by the fact that the site contained the ruins of an old Cistercian Abbey in connection with which the Council wished to retain the actual site for future exploratory work.

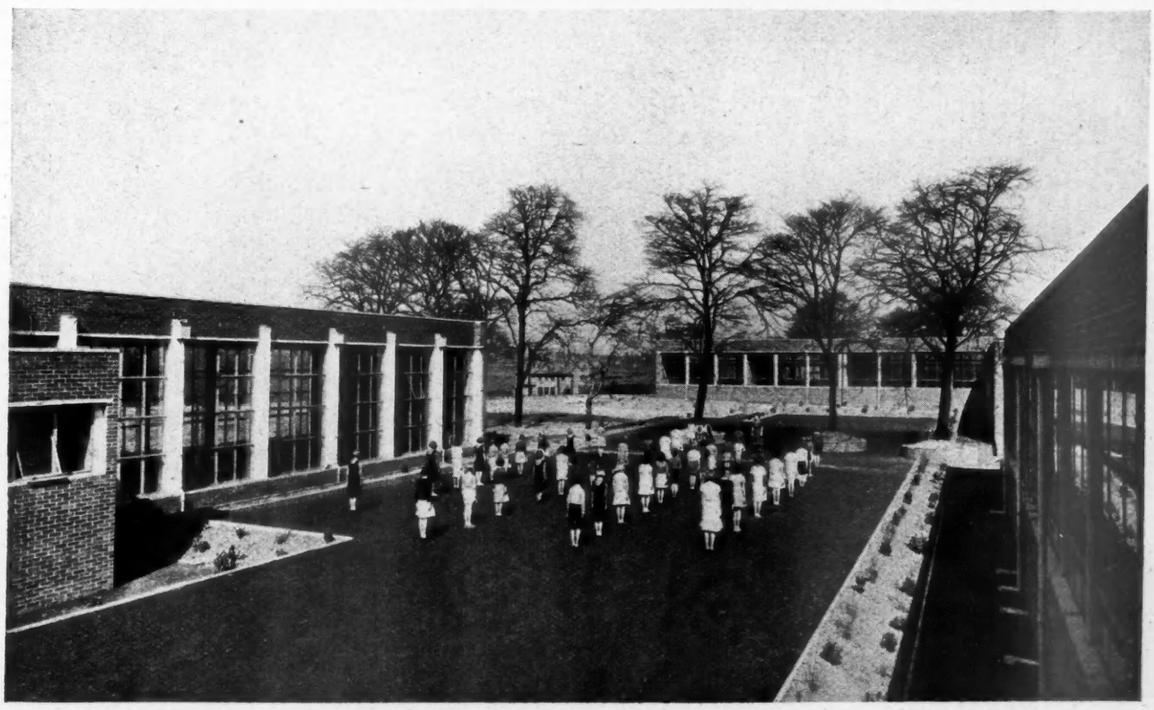
FINISHES.—The general finish of the building is in multi-coloured local rustic facings, and a feature is the very large glass area obtained by using the concrete frames as mullions and obtaining a practically continuous band of window around the school. The exposed concrete faces have simply been rubbed up from wrot sheeting and treated with one coat of Cementone in a shade of cream.

The internal finishes have been kept very plain, and an extensive use of power-pressed concrete bricks, water-painted, has been made to eliminate plaster almost entirely, the only rooms plastered being the staff rooms. The heating is on the embedded ceiling panel system, boilers being fed by automatic stokers.

The work, which cost £52,382, including an allowance of £8,500 for special precautions against mining subsidence, was carried out in two stages; firstly the reinforced concrete frame, and secondly the brickwork and finishings, the main contractors in both cases being Messrs. Sambrook Bros., Ltd., Hamil-road, Burslem, with the following sub-contractors:—

Sanitary fittings, G. Hollins and

VIEW IN PHYSICAL TRAINING COURT, LOOKING TOWARDS ASSEMBLY HALL.

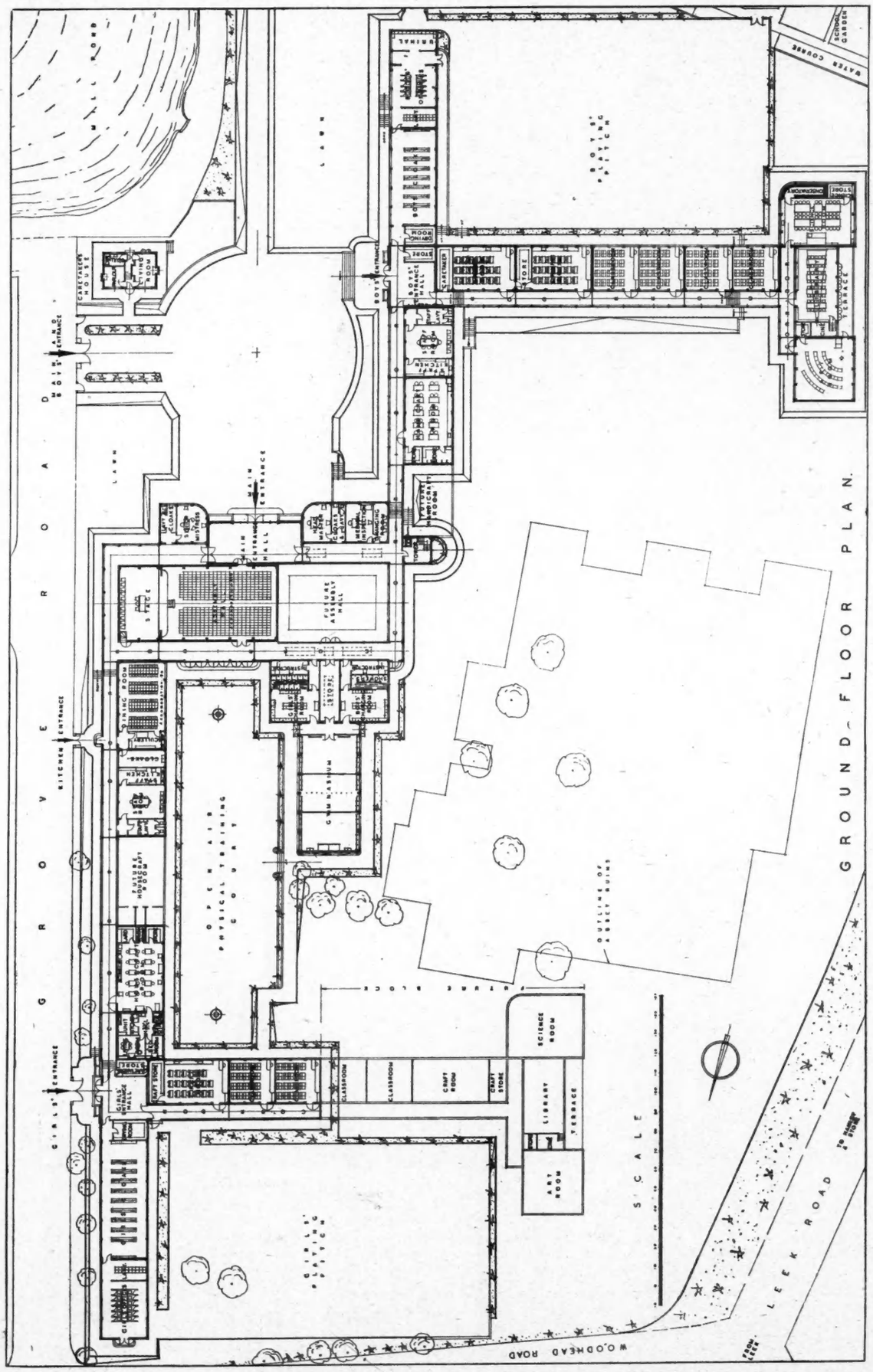


VIEW IN PHYSICAL TRAINING COURT, LOOKING NORTH.

Sons, Ltd.; cloakroom fittings, A. Brown and Co.; cast stone, Hilcrete, Ltd.; flush doors and W.C. doors and partitions, Flexo Plywood Industries, Ltd.; metal windows and doors, Doodson and Bain, Ltd.; door fittings, N. Watts and Co., Ltd.; flooring works, H. L. Tucker; acoustic plaster, May Acoustics, Ltd.; trees and shrubs, J. Hill and Sons; ferro-concrete roof lights, Luxfer, Ltd.; electrical installation, F. W. Harris and Co., Ltd.; fencing, Penfold Fencing, Ltd.; low-pressure heating installation, G. S. Hall; panel warming, G. N. Haden and Sons, Ltd.; and asphalt work, Neuchatel Asphalte Co., Ltd.

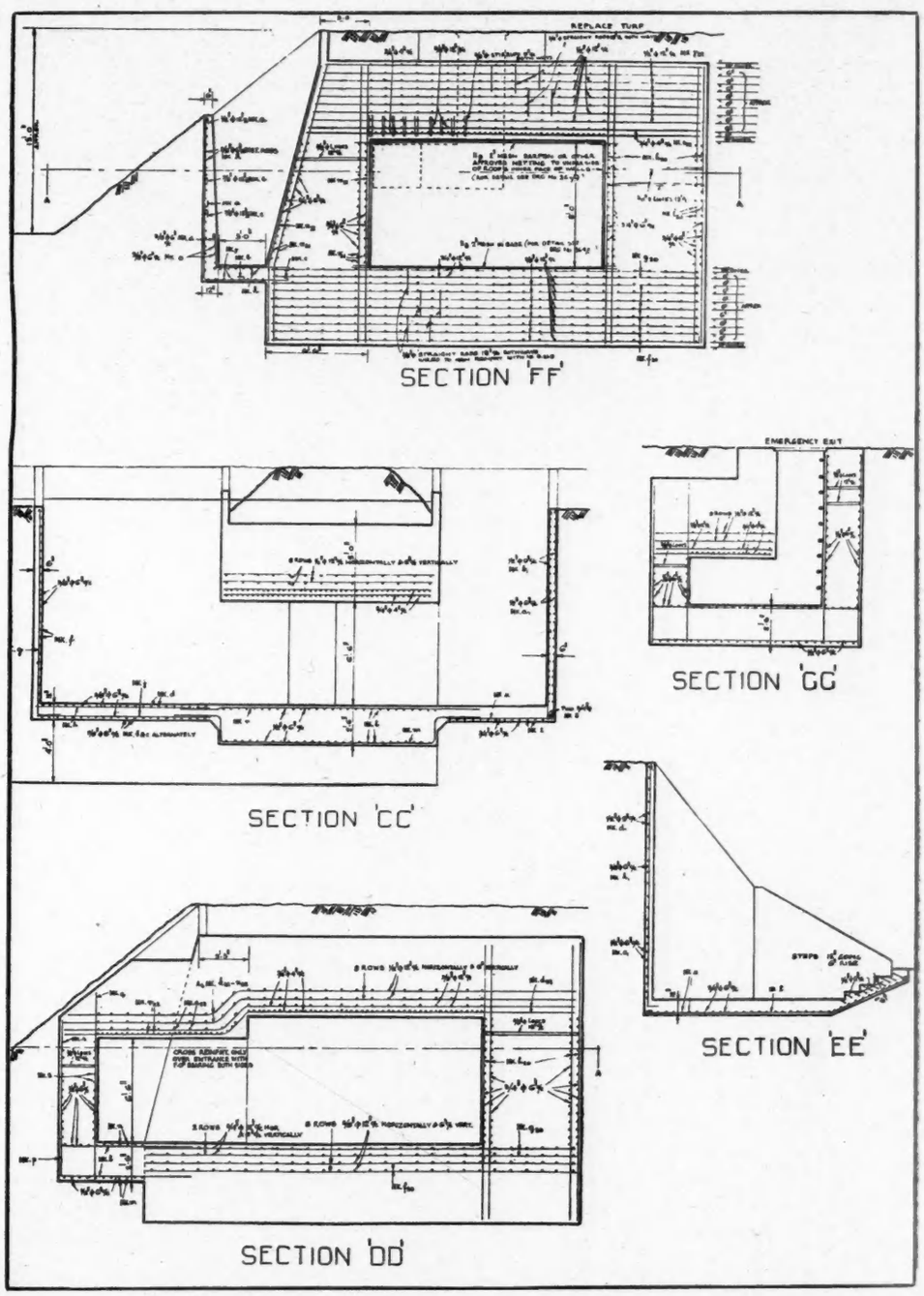
Messrs. Christiani and Nielsen, Ltd., acted as reinforced concrete specialists. Mr. H. Lawton was clerk of works.

CARMOUNTSIDE SENIOR SCHOOL FOR THE CITY OF STOKE-ON-TRENT.



CARMOUNTSIDE SENIOR SCHOOL FOR THE CITY OF STOKE-ON-TRENT.

MR. J. R. PIGGOTT, A.R.I.B.A., CHIEF ARCHITECT. MR. W. I. WATSON, A.R.I.B.A., ASSISTANT ARCHITECT FOR EDUCATIONAL BUILDINGS.



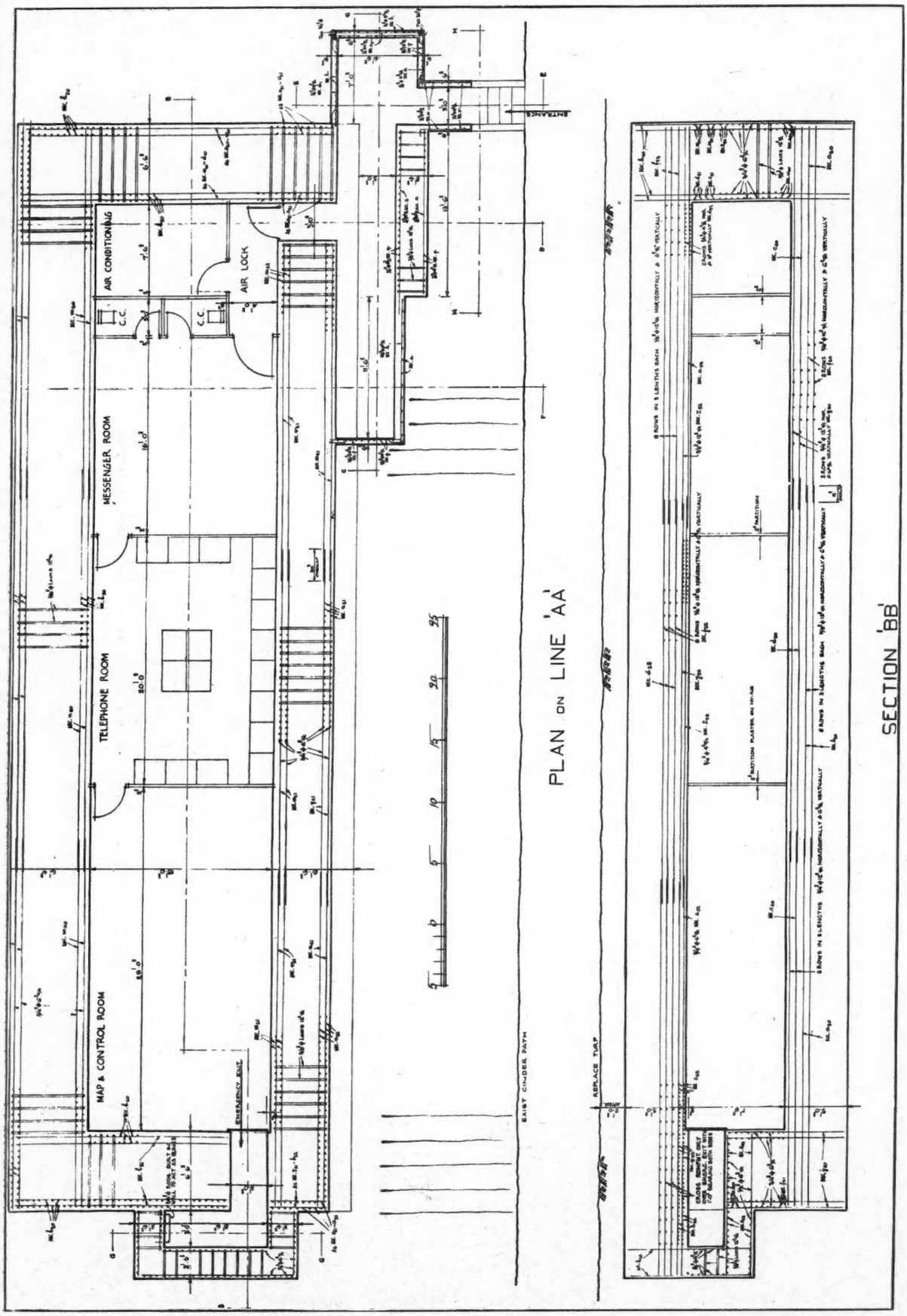
A CENTRAL CONTROL STATION, DEPTFORD.

DESIGNED BY MR. ALFRED S. GRUNSPAN, M.INST.C.E.

When considering the Central Control Station, Mr. H. Morley Lawson, Borough Engineer of Deptford, decided in favour of a bomb-proof structure, which has been designed by Mr. Alfred S. Grunspan, B.Sc., M.I.C.E., A.C.G.I., consulting engineer, to withstand a direct hit by a 500-lb. bomb. The station is underground and is covered by about 2 ft. of earth.

The station is equipped with a map and control room, messenger room and an air conditioning room which is capable of dealing with an air change of 450 cu. ft. per person per hour. Auxiliary electric lighting plant is also provided. The station is fitted with airtight doors and is gas-proof.

As will be noted from the accompanying drawings, the walls are 6 ft. 6 in. thick and the roof and floor 5 ft. thick. The disposition of reinforcement should be noted.



A CENTRAL CONTROL STATION FOR THE BOROUGH OF DEPTFORD. DESIGNED BY MR. ALFRED S. GRUNSPAN, M.INST.C.E.

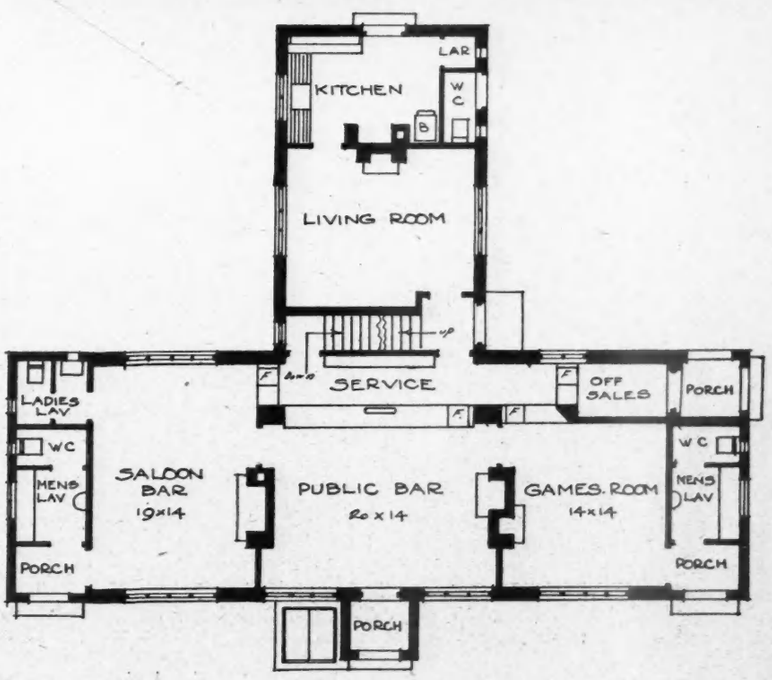
THE "OLD STAG AND HOUNDS," HOLMER GREEN, BUCKS.

MR. G. BERKELEY WILLS, F.R.I.B.A., ARCHITECT.

Left : THE MAIN FRONT.

Below : THE PUBLIC BAR.

Right : GROUND-FLOOR PLAN.



A good example of a simple moderate-sized country public-house, this inn has two bars, games room, and off-licence. Above are four bedrooms, bath-room, etc., for the licensee.

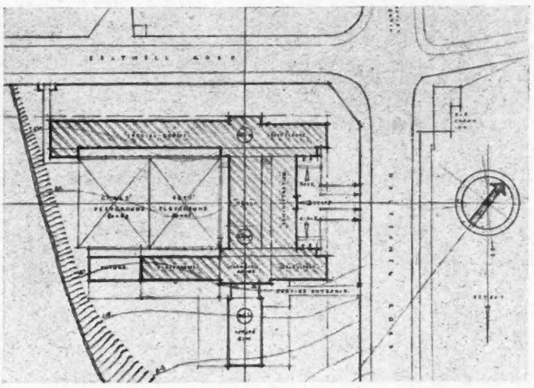
It is built of multi-coloured facings, with cream-coloured flush mortar joints, hand-made sand-faced tiles, standard metal windows in wood frames painted ivory, and silver-grey oak doors. Internally, the joinery is of grey oak, and the plaster walls are finished with a wood float.

The general contractors were Messrs. Higgs and Sons, of Great Kingshill ; the heating and hot-water services were by Mr. F. H. Keating, of Maidenhead ; and the electrical work by Mr. Cozens, of Sunninghill. The architect was Mr. G. Berkeley Wills, F.R.I.B.A., of London and Marlow.

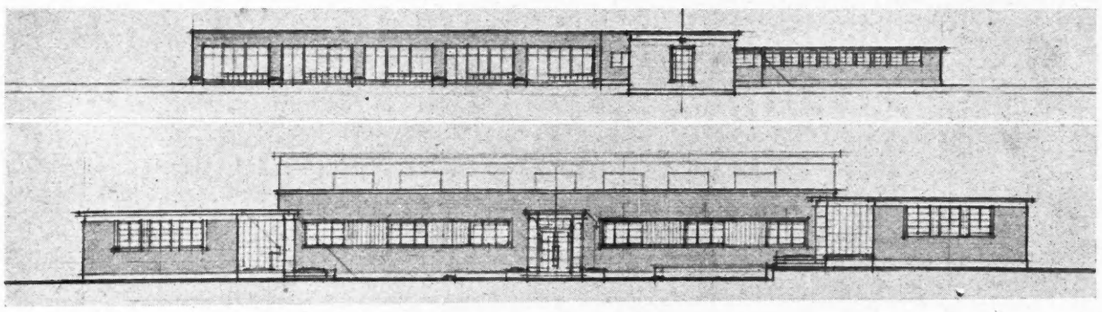
COMPETITION FOR MIXED SENIOR SCHOOL, DUDLEY

WINNING DESIGN: BY MESSRS. HICKTON, MADELEY AND SALT, AA.R.I.B.A.

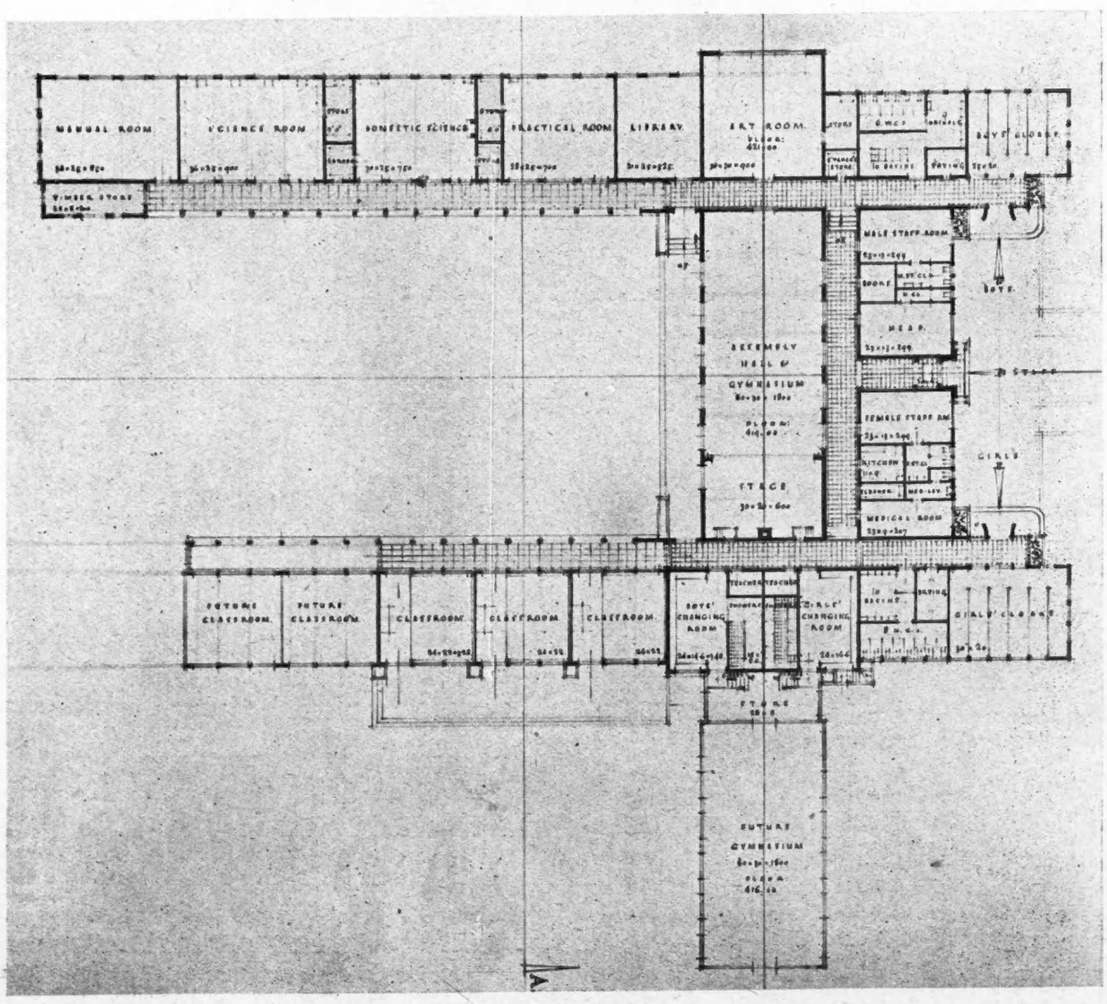
THIS design for a new mixed senior school at Halesowen-road, Dudley, has been placed first in a limited architectural competition promoted by the County Borough of Dudley. The full result is given on page 814, and the report of the assessor (Mr. S. N. Cooke, F.R.I.B.A.) is on page 827. To be built in brick with flat roofs and metal windows, the school is planned on one floor, and is estimated to cost £16,800, exclusive of the gymnasium, which is planned to the south and would be built later.



LAYOUT.



THE SOUTH-EAST ELEVATION (*above*) AND THE NORTH-EAST ELEVATION.



THE PLAN.

ILLUMINATED DISPLAY CABINETS

A B.S. SPECIFICATION.

UNDER the ægis of a Joint Committee of the Illuminating Engineering Society and the Home Office (A.R.P. Department) B.S./A.R.P. 35 has been prepared. This specification—which forms one of a series of specifications issued by the British Standards Institution at the request of the Air Raid Precautions Department of the Home Office—covers illuminated display cabinets intended to be placed in shop windows under war-time conditions. It prescribes the essential constructional features, the size of cabinets, the method and degree of illumination, and the requirements as to installation.

GENERAL.—The construction of the cabinets shall conform to the shape and dimensions shown in Fig. 1. The essential features are a display platform (A), a light trap well (B), a display aperture (C), a screening pelmet (D), and baffle for light cut-off (E). The cabinet shall be constructed from suitable opaque material in such a manner that no light can escape from the cabinet other than through the display aperture. The lighting fitting shall be placed centrally, immediately behind the screening pelmet (D). All interior surfaces of the cabinet shall be treated with a dead matt black material which shall be permanent in character. The object of the display platform is to ensure a suitable light cut-off.

DIMENSIONS.—The display aperture shall have the following dimensions: either (1) 1 ft. high by 1 ft. 6 in. wide; or (2) 2 ft. 6 in. high by 2 ft. wide; or (3) 6 ft. high by 3 ft. wide; and these dimensions shall determine the size of the cabinet used, the internal dimensions of which shall be those shown on the appropriate sketch in Fig. 1.

LIGHTING FITTINGS.—Each cabinet shall have one lighting fitting such as to give, as closely as practicable, the distribution curve [shown in Specification]. The values shown on the curve shall not be exceeded in any vertical plane through the light centre of the fitting.

For guidance, drawings and descriptions of electric and gas fittings designed to comply with the Specification are given in Appendices.

CONDITIONS OF USE.—(*a*) The number of cabinets used shall be limited to one per window, except that where a window frontage exceeds 20 ft. one cabinet for each complete length of 10 ft. of frontage may be installed.

(*b*) The distance between the front of the cabinet and the window glazing, facing on to a street, shall not be less than: 2 ft. for the cabinet having an aperture 2 ft. 6 in. by 2 ft.; 4 ft. for the cabinet having an aperture 6 ft. by 3 ft. For the cabinet having an aperture 1 ft. by 1 ft. 6 in. the distance should, if practicable, be not less than 1 ft.

(*c*) No cabinet shall be placed in a window above the ground floor.

(*d*) The front of the cabinet shall be vertical.

(*e*) No portion of the display shall project in front of a vertical line from the front edge of the display platform to the top of the cabinet.

(*f*) The lighting shall be extinguished within one minute of an air raid warning being sounded.

Note.—It is desirable that additional top screening be provided in order to minimise visibility of the illuminated surfaces of exhibits from the air. This screening might take the form of sun-blinds if fitted, canopies either above the window or the cabinet, or window-blinds lowered to a level of 6 ft. above the pavement. Price 2d. (3d. by post), the Specification is obtainable from British Standards Institution, 28, Victoria-street, S.W.1.

B.S. for Curtain Material.

References have frequently been made in the House of Commons to the desirability of establishing a standard for curtain material which possesses the appropriate obscuration value to satisfy the "black-out" regulations. The British Standards Institution, with the approval of the Home Office, has laid down a standard for the obscuration value of curtain material, and the method by which it should be determined. Copies of this British Standard BS/ARP 23, can be obtained from the offices of the British Standards Institution, 28, Victoria-street, price 3d. each, post free.

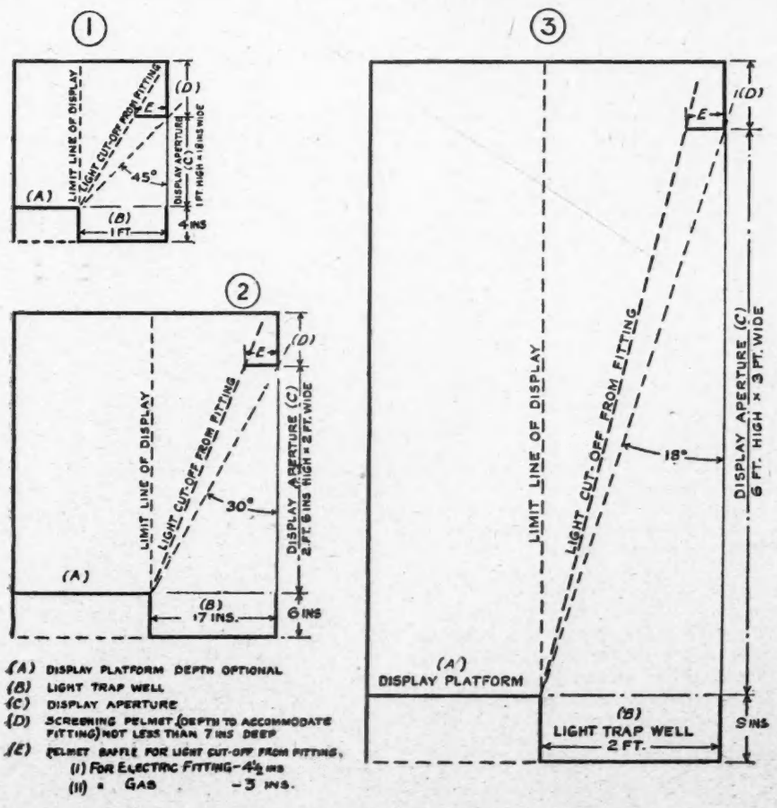


FIG. 1.—DIAGRAMS OF ILLUMINATED DISPLAY CABINETS.

COMPETITION FOR SENIOR SCHOOL, DUDLEY

THE award of the assessor (Mr. S. N. Cooke, F.R.I.B.A.) in the architectural competition for a new mixed senior school, Halesowen-road, is given on page 814, the winning design (by Messrs. Hickton, Madeley and Salt, AA.R.I.B.A.) being given on page 826.

Following is Mr. Cooke's report to the Dudley Education Committee:—

I have examined thirty-seven drawings and reports and should like to congratulate you on the excellent entry and the high quality of the designs submitted. After careful consideration I place No. 16 first, No. 33 second, and No. 19 third.

The first premiated design is a straightforward plan making the best use of the contours of the ground, with good circulation and ventilation. The whole of the school is planned on one floor. The entrances are well placed, and the administrative rooms and assembly hall are in a central position. The changing-rooms are so placed that they may be efficiently used in conjunction with the assembly hall and also with the future gymnasium. The classrooms have the best aspect, that is to say, south-east. The whole scheme is very economical in outlay and upkeep.

The elevations are well proportioned, and if a careful choice of material is exercised should look well. The competitors' estimate of £16,800 is possibly a little optimistic, but it should be built within the 10 per cent. margin allowed in the conditions. The playgrounds are on the small side and require further consideration. The store for the gymnasium cannot be used until the gymnasium is built. It would therefore be necessary to have a temporary store for the assembly hall. This might be obtained by using the two small rooms marked "Teacher" on plan for this purpose until the gymnasium is built. There is a discrepancy between the elevations and the plans, being a draughtsman's error.

No. 33, which I place second [Messrs. Redgrave, Son and Clarke] is also an excellent plan. It is not as economical as No. 16, and the assembly hall is not so well placed, but the aspect of the classrooms and practical rooms is excellent, and the disposition of the entrances, cloakrooms and lavatories is good. This plan has a second storey over the classrooms, the author having taken full advantage of the levels of the ground in this respect.

No. 19, which I have placed third [Messrs. Coton, Harrison and Thomas], is a plan on somewhat similar lines to the first premiated design, but the arrangement of the entrances and the general planning are not so efficient; the central hall is also inferior. This, however, is another economical plan taking full advantage of the contours of the site.

I should like to commend highly Nos. 10, 1 and 6.

Auctioneers and Landed Property Agents.

The staff of the Incorporated Society of Auctioneers and Landed Property Agents is again working at the Society's headquarters in London. Communications should be addressed to the Acting Secretary, 34, Queen's-gate, London, S.W.7. Telephone: Western 0034.

A.R.P. IN CATALONIA

LECTURE TO A.R.P. INSTITUTE.

A LECTURE was given to the Air Raid Protection Institute, on December 12, by Senor Ramon Perera, Chief A.R.P. Engineer to the Government of Catalonia during the Spanish war. Senor Perera dealt with the subject of "A.R.P. in Catalonia."

After discussing the subject in great detail, and dealing with the effect on different types of buildings of various sizes of bomb, the lecturer spoke of the four main types of shelters considered by the Catalonian authorities. These were: 1, The large cellular type; 2, the tunnel type; 3, the adaptation of basements; and 4, the covered trench. This last type was rejected because: (*a*) The protection given in proportion to the work entailed was much less than with the other types; (*b*) the difficulties of finding suitable sites in which to place them, especially owing to the fact that with this type of shelter the area of the site needed to accommodate them was many times larger than the effective floor surface of the shelter; (*c*) the volume of earth to be excavated was practically the same as that for the more satisfactory types; (*d*) the open spaces, parks, gardens, suitable for such a type were usually too far from the places for which there was need to provide shelters, for it was considered that the entrance to a shelter should not be located at a distance greater than 110 yards from the usual place of those for whom it was meant to be a protection; and (*e*) the provision of this type of shelter without overhead protection, except against splinters, could not be accepted as the responsibility of the Government in the general programme of protection, for, as it was building at the same time bomb-proof shelters, it was decided that it should not provide shelters with such varying degrees of protection.

Many basements were examined with a view to adapting them as shelters, but it was found that few were suitable. Sometimes, however, owing to the solidity of the buildings, the number of floors, the lack of courtyards, and protected sides, it was found that only slight alterations, such as the sealing of windows with concrete and the making of a convenient entrance, were all that were necessary.

Nothing could be done when the basement needed reinforced protection at the sides or overhead, the reasons being: (*a*) The work and material expended in this way could be utilised to better purpose in the building of proper shelters; and (*b*) it was usually found that, owing to the difficulties of internal walls, conduits, entrances, frequently narrow, low ceilings, etc., only a mediocre result could be obtained even after a long period of work. And also in these cases the purpose of providing a uniform degree of protection led to the conclusion that in spite of the basement being in many cases the safest part of a building, it could not be officially accepted as shelter.

"The strengthening of those basements with the idea of providing support against the debris weight of the collapsed building was useless," declared the lecturer, "and my experience compels me to think that the cause of such collapses is obviously overlooked. The debris load assumed for the calculation of the strengthened basement is larger or smaller in proportion to the number of floors above. But as you have seen before, the collapse of the building, generally speaking, is the result of a direct hit over that same building. This fact affected our decision that any basement under a building which by reason of its number of floors and good construction could not afford a reasonable protection according to the standard established, could not be accepted as shelter. In these cases, owing to the chances of the hits that can reach the basement passing through the wall openings, special care was necessary to provide the shelter in the central area of the basement and affording a substantial lateral protection by means of additional walls.

"However, when the basements were suitable, an independent shelter was constructed in them, this proceeding being more advisable. Should the basement be in other ways suitable, yet not have sufficient headroom, it was increased by sinking the floor level.

Cellular and Tunnel Types.

"The large cellular type and the tunnel type were built upon all suitable occasions. But, apart from these prototypes, we built many shelters that were adaptations or modifications of the general ideas that have been indicated. In Reus, a town of 40,000 inhabitants, there were nineteen large shelters, some holding up to 2,500 persons each, and eighty-six smaller shelters, mostly holding up to 100 persons. The efficacy of this protection was so great that the life of the town went on regularly up to the moment it fell in January of this year. A good distribution of entrances, together with an efficient warning system, had the results that with 102 bombardments over this town, in which more than 3,000 bombs were dropped, most of them of 100 and 200 lb., the number of casualties was 246 people killed and 385 injured, and of these a great number occurred in the period during which the protection was not completed, for the first attack took place in September, 1937.

Direct Hits and Concussion.

"A question which has often been asked is whether we had any direct hits upon the shelters. Certainly we had. Over tunnel types and also over an underground station used as a shelter we had several direct hits, without any harm to the people sheltered. But I consider it of more importance to describe two cases of direct hits upon shelters above ground. The first case happened on the wharf of Barcelona. In order to obtain a handy protection for the workmen, a number of emergency shelters were built along the harbour. These shelters were arranged with the mass concrete blocks used in the construction of the breakwater. When the war broke out, we had some scores of blocks already finished, their dimensions being 7 ft. 4 in. by 8 ft. by 14 ft., and the weight was 55 tons. A 200-lb. bomb hit the top block, and the effects were definitely localised to the block which was struck, the damage produced consisting of a lateral splitting of one part of the block, an inside spalling of the roof, with the characteristic conical shape. . . . The only inconvenience suffered by the twenty-eight men in this shelter at that time was of a temporary deafness, notwithstanding that, in addition to this bomb, another bomb exploded simultaneously a distance of only 12 ft. from the side."

BOOKS RECEIVED

The Sanitary Inspector's Handbook. By H. H. Clay, F.R.San.I., F.I.S.E. (London: H. K. Lewis & Co., Ltd.) Price 17s. 6d. net.

Timber—Its Properties, Pests and Preservation. By F. Y. Henderson, D.Sc., D.I.C., F.L.S. (London: Crosby Lockwood & Son, Ltd.). Price 9s. 6d. net.

Dampness in Domestic Buildings. By Stanley R. Dawes, L.R.I.B.A. (London: The Technical Press, Ltd.) Price 2s. 6d.

101 Things for the Housewife To Do. By Lillie B. & Arthur C. Horth. (London: B. T. Batsford, Ltd.) Price 5s. net.

The Economics of Building. By Herbert W. Robinson. (London: P. S. King & Son, Ltd.) Price 10s. 6d.

Manual of Practical Gas Fitting. By R. N. Le Fevre, M.Inst.GasE. (London: Walter King, Ltd.) Price 7s. 6d.

The Secret Springs. An Autobiography by Claude Bragdon. (London: Andrew Dakers, Ltd.) Price 12s. 6d. net.

The Workmen's Compensation Acts, 1925-1938. 32nd Ed. By W. Addington Willis, C.B.E., LL.B. (London: Butterworth & Co. (Publishers), Ltd.) Price 20s. net

Choosing a Modern House. By R. Myerscough-Walker. (London: The Studio, Ltd.) Price 6s. net.

EMERGENCY INQUIRY BUREAU

Questions from readers arising out of War-time difficulties and recent Emergency legislation will be answered by a special staff of contributors. Questions, which should be addressed to the Editor, should be accompanied by a stamped and addressed envelope.

Air-Raid Shelters in Flats.

SIR,—*Must air-raid shelters be provided for residential flats?* F. B.

Yes, in the following circumstances: Under Section 30 of the Civil Defence Act, 1939, it is obligatory on the owner of such flats to prepare an air-raid shelter scheme, if so required by half the number of the occupiers of a building or block, wholly or mainly used for residential purposes and let out in separate parts, and which is situated in any area specified in an Order by the Minister. A copy of the scheme must be served on each occupier of a separate part, and unless more than half the number of such occupiers dissent, the shelter must be provided. Valid expenditure is to be distributed by way of increases of rent operating for not more than ten years.

Existing Buildings and Civil Defence.

SIR,—*What powers has a local authority to take an existing building for purposes of civil defence?* W. T.

A local authority obtains its powers from the Civil Defence Act, 1939. Shortly, a local authority may decide that any building or part of a building (which would apparently include any structure or erection) is already suitable or may be adapted for use for public purposes of civil defence. The Act empowers them, amongst other things (though does not oblige them) to post in the property a notice that it may be required; and the premises are said to have been "designated." After designation, no structural alteration may be made in the designated premises without the local authority's consent, though there is a right of appeal to Quarter Sessions as to this.

Destruction of Bugs.

SIR,—*We should be obliged if you could tell us of the most effective method of destroying bugs.* J. W. A.

Minor infestations can be eradicated by soap and water, with perhaps the addition of a disinfectant of the carbolic type. Eggs will be readily dislodged and killed by means of a scrubbing-brush, soap and water. Contact insecticides having a basis of paraffin and an additional toxic agent, such as pyrethrum or derris, are also useful. Where bugs have become so established that the foregoing measures are insufficient to eradicate them the local Medical Officer of Health should be consulted. Major infestations may need fumigation with hydrocyanic acid gas, which, however, is extremely poisonous to human beings and must be handled by experts. Probably the oldest alternative method of disinfestation is by means of sulphur dioxide.

We advise our correspondent to obtain a copy of "The Bed Bug," published by the British Museum (Natural History), South Kensington, price 6d.

R.I.B.A. Problems in Design.

The list of R.I.B.A. Problems in Design for the year ending December 31, 1940, has been issued. Copies may be obtained free on application at the R.I.B.A., 66, Portland place, W.1.

THE AVOIDANCE OF FROST BURSTING IN WATER PIPES

THE following paper by Dr. J. McKeown, M.Sc., D.Ph., A.M.I.Mech.E., is a summarised account of work carried out by the British Non-Ferrous Metals Research Association for the British Waterworks Association and is reprinted by permission of the latter.

The paper was read before a meeting of the British Waterworks Association.

An investigation on the frost bursting of water pipes was commenced by the British Non-Ferrous Metals Research Association in 1931, with some financial support from the British Waterworks Association. Its object was to study the effect of frost on water pipes, taking into consideration the properties of materials used for water pipes, the effect of low temperatures on these properties, the process of ice formation and its mechanical effects in pipes under widely varying conditions of service. The full results of these investigations are contained in various reports issued by the Research Association to its members. The following summary is intended to explain shortly the practical conclusions that can be drawn from the results.

The freezing of water is accompanied by an expansion of approximately 9 per cent. by volume. The freezing point is lowered by pressure, but this is of no practical significance as regards ordinary water services since the pressures required to keep water liquid at temperatures materially below freezing point are extremely high. For example, to maintain water liquid at a temperature of 2.5 deg. C. below the freezing point requires a pressure in the water of 2.1 tons/sq. in.; such a pressure would set up stresses in the pipe wall which no water service material could withstand.

When the water in a pipe freezes, the expansion due to ice formation must be accommodated in one of three ways: (*a*) by the unrestricted movement of water along the pipe (for example, back into the main), (*b*) by expansion of the pipe, (*c*) by escape of water from the pipe owing to a burst.

In practice, water pipes not infrequently freeze without any distortion of the pipes, because of the unrestricted movement of the water which accommodates expansion. For instance, in an outside pipe rising to an exposed tap, if freezing proceeds from the tap downwards, the pressure is relieved by the flow of water back into the main. Such effects are frequently fortuitous and not the result of forethought in design. Trouble arises where the freezing water is trapped between taps or between one tap and an immovable ice plug, in which case the pipe must expand or burst.

From time to time different pipe materials have been suggested as being resistant to frost bursting. While it is known that no such completely resistant material is available, it has been suggested that materials of different mechanical properties might behave differently and a material might be found which, although not eliminating all danger, would mitigate the trouble by withstanding a larger number of freezings under totally confined conditions.

Resistance of Pipe Materials.

A considerable amount of experimental work has been carried out to test this suggestion, materials of widely different properties being selected for examination. A study was made of the mechanical properties of the materials above and below the freezing point of water and actual freezing tests under various conditions were carried out. The materials tested included both hard and soft copper, lead, and various lead alloys in which the alloying constituents were such as to vary the mechanical properties of the lead considerably.

Tests at temperature between + 20 deg. C. and −20 deg. C. showed that variation in properties between the upper and lower limits of this temperature range, although appreciable was not sufficiently great to alter the character of the material.

Laboratory tests, in which water was frozen in lengths of pipe sealed at each end, showed considerable variation from one material to another, depending largely on the conditions of freezing. Under uniform freezing conditions—*i.e.*, totally immersed pipes in which the freezing takes place simultaneously throughout the length—the number of freezings necessary to produce failure depends on the ductility of the material. Hard copper under such conditions fails at the first freezing, while soft copper, lead and lead alloys expand on successive freezings and withstand from about four to six freezings, depending primarily on the ductility of the material and to a lesser extent on the dimensions of the pipe. It does not follow, however, that, in practice, a water service pipe of these materials would still be satisfactory after, say, three freezings, as the expansion from these three freezings may reduce the wall thickness of the pipe to a point at which it would not permanently withstand ordinary mains pressure.

In any case it is difficult to ensure that uniform freezing occurs in a length of pipe, and this condition rarely occurs in practice. If there is any difference in temperature along the length, freezing will start at one end and proceed along the pipe and the maximum expansion will occur at the end of the pipe in which the water is last to freeze. Under these conditions the concentration of expansion towards one end of a length of frozen pipe may cause even a ductile material to burst at this end after only one freezing.

Thus it is apparent that the use of pipe materials of high general ductility, chosen to accommodate the expansion due to ice formation by expansion of the actual pipe, is not a practical method of overcoming the trouble of frost bursting, and claims for the superiority of a particular material based on its high ductility are at best only justified by a slightly increased life.

Movement of Ice Plugs.

There is one other way, however, in which a property of the pipe material may affect its behaviour. If water is entrapped between a closed tap and a plug of ice the pressure generated as further freezing proceeds may be sufficient to move the ice plug along the pipe and so relieve the stress in the pipe walls. This effect has been investigated and it has been shown that the harder the pipe material the greater is the length of ice plug which can be moved without distortion of the pipe. The plug that can be moved in a half-hard copper pipe, for instance, is longer than that which can be moved along a lead pipe, but plug movement will only take place along a straight piece of pipe of uniform cross-section with a smooth internal bore. In practice, advantage of this effect can only be taken when the plug which seals off a portion of the pipe is formed in a suitable position and not, for instance, at a bend.

These considerations show that frost bursting cannot be prevented by improvement in the properties of pipe materials. The architect and builder should so design the installation that water in the pipes does not become cold enough to freeze or, if it does so, freezing proceeds in such a manner that high pressure cannot be set up in any length of pipe.

Methods of Avoiding Freezing.

Obviously, frost bursting cannot take place if pipes are installed in positions such as internal walls of a house in which there is little danger of the temperature falling to the freezing point. When this is impossible some method of protection of the pipe should be employed. A full study and comparison of such methods is outside the scope of the British Non-Ferrous Metals Research Association, but a few preliminary field tests conducted on the roof of the Association's laboratory in London give some guidance in the matter. A number of lead pipes connected to one main supply pipe were exposed for three successive winters (1932-5). Some pipes were unprotected, some wrapped with felt, hessian and tarpaulin strips and some totally enclosed in wood casing. In each group some of these pipes were separated from the main pipe by a closed tap. Of the pipes totally exposed to the weather, all those separated from the main by a closed tap burst, but only 50 per cent. of those open to the main burst. Wrapping also reduced the bursts in those pipes cut off from the main by a tap to 50 per cent. and eliminated bursting entirely in pipes open to the main.

When pipes were under a roof but open to the weather on all sides, no wrapped pipes burst, but the unwrapped pipes behaved similarly to those entirely exposed. Complete boxing-in prevented any bursting irrespective of wrapping or disconnection from the main with a tap and in three winters no boxed-in pipe burst or showed sign of swelling.

These tests are in no way conclusive, but serve to show that the simple wrapping used reduces the risk of frost bursting of exposed pipes very considerably and that complete boxing-in of such pipes is highly efficient owing to the prevention of the free play of cold wind round the pipes, stagnant air being a good insulator.

There is room for a thorough investigation of the relative efficiencies of different types of wrapping for this purpose. In wrapping pipes for frost protection, rather different conditions obtain from those encountered in lagging to prevent heat losses. A wrapping to be efficient must be dry. For heat conservation the lagging is eventually dried from the source of heat on the inside and although, during the drying period, the lagging is inefficient, it eventually dries and becomes satisfactory. In protecting pipes from frost, the wrapping is not automatically dried out.

The preliminary field tests referred to also show that the closing of stop-cocks, thereby preventing the free movement of water back into the main, or into a storage tank, increases the risk of frost bursting.

The freezing of underground pipes is prevented by the simple precaution of laying the pipes sufficiently deeply to avoid reaching the freezing point. Records of deep earth temperature indicate that in this country, pipes buried to a depth of 2 ft. would not freeze except in a few localities during a record-breaking frost such as that of 1895. Thus a general rule of burying water pipes to a minimum depth of 2 ft. would prevent freezing in all but exceptional localities and weather conditions. Pipes rising from buried mains should, however, be carefully protected below ground down to a depth of 2 ft. since it is most important to prevent the formation of an ice plug below ground level which would seal off the pipe from the main.

General Conclusions.

(1) The material of a pipe is of secondary importance as compared with installation layout. The behaviour of different materials depends on the condition of freezing, and no material can be recommended to avoid frost bursting under unsatisfactory conditions.

(2) Where it is impossible to avoid installing a water pipe in a position which might result in freezing, the pipe should be protected by wrapping or boxing-in (as by wood casing) or both. The best type of protection depends on the conditions and has not been studied in this work. The value of still air, and the importance of keeping dry any wrapping used for this purpose are known.

(3) Pipes which are exposed to frost are more liable to burst if freezing proceeds along the pipe towards a closed tap or stopcock. In cases where the complete prevention of freezing is impossible, protection should be so arranged to ensure that freezing proceeds towards an open tap, main or supply tank.

Thus the only completely effective method of avoiding frost bursting is to prevent the formation of ice in water pipes, though damage from freezing may be minimised.

LAW REPORT

WALL DISPUTE AT OXFORD: USE OF STEAM ROLLER TO DEMOLISH.

COURT OF APPEAL.

Before the MASTER OF THE ROLLS and LORDS JUSTICES CLAUSON and GODDARD.

Urban Housing Co., Ltd. v. City of Oxford.

In this case the Mayor and Corporation of the City of Oxford appealed from the judgment of Mr. Justice Bennett in the Chancery Division (reported in *The Builder* of October 20), granting a declaration against the appellants that the plaintiffs, the Urban Housing Co., Ltd., were entitled to erect and maintain on the sites on which they formerly stood, two walls demolished by the Oxford City Council. He also awarded the plaintiffs £180 damages.

The plaintiffs brought the action against the defendant Corporation for an injunction to restrain the Corporation from interfering with or preventing plaintiffs from erecting certain walls erected by them in December, 1934, on land belonging to them which adjoined Wentworth- and Carlton-roads in the City of Oxford, and which walls the plaintiffs alleged had been unlawfully demolished by the defendant Council in June, 1938.

Mr. C. R. Fox, the Chief Constable of Oxford, was joined as a second defendant to the action, and pleaded that he had no interest in the dispute except to carry out his duties as Chief Constable, and he was eventually dismissed from the suit, Mr. Justice Bennett, in the circumstances, making no order as to his costs.

The material facts of the dispute were as follows: The plaintiff company in 1934 were developing a residential estate on a portion of the land in question, and the defendant Council were doing likewise on land on the east side of that of the plaintiffs. In that year the plaintiffs erected a wall across each of two parallel roads which passed through the two estates and gave access to the Banbury-road. Those walls prevented the occupants of the Council's estate from passing along the roads through the plaintiffs' estate so as to reach the Banbury-road, and the defence was that the walls had been wrongfully erected so as to block the roads; that the roads were public highways, and that the Council were entitled to remove them as constituting breaches of certain by-laws in force within the City of Oxford and of the plaintiffs' obligations under a deed of conveyance dated September 9, 1933.

During the course of the hearing in the Chancery Court, Mr. Justice Bennett made some strong observations on the action of the defendant Council in taking the law into their own hands as they had done on June 7, 1938. He said he considered it was deplorable after the wall had been up for three and a half years that the Council should have thought it right violently to pull it down instead of going to the Courts to have their wrongs redressed, if they had any [a steam roller had been used for the demolishing].

His lordship held that the defendants had failed to establish that the restrictive covenants into which the plaintiffs had entered in the conveyance of 1933 had been and would be infringed by the erection of the walls which the Council had demolished, granted the declaration previously stated and awarded the plaintiffs £180 damages. From this result the defendants now appealed.

At the conclusion of the arguments the Master of the Rolls, in giving judgment dismissing the appeal, said, after stating the facts, that the last expedient which commended itself to the Corporation consisted of a judicious combination of the Private Street Works Act, 1892, and the city steam roller. To what extent that miserable affair could be reconciled with the dignity of a great and historic Corporation might well be left to the sober reflections of the City Fathers.

The first points taken by counsel for the appellants related solely to the construction of the conveyance, which did not reserve any right of way to the Corporation along the roads in question. He was unable to extract from the clauses in the conveyance which he had considered anything which prohibited the plaintiff company from fencing their estate, and that there was nothing in the conveyance which enabled the Corporation to complain of the erection of the walls. Clause 7 of the conveyance, which dealt with the building line in terms, permitted the erection of a fence on the sites of the proposed roads. He could not take the view that "fence" could not include "wall." It had been argued that the walls had been built in breach of a covenant and that, accordingly, they might be removed by means of the city steam roller. That was not a thing which the law of England permitted.

It was next said that the walls had been erected in contravention of Section 26 of the Public Health Act, 1875, which was in force when they were built. Reliance on that section was misplaced, because the reasons for which the walls were pulled down had nothing to do with it.

The last point depended on the Private Street Works Act, 1892, Section 19. When the Corporation passed the necessary resolution to put that section into effect there were in existence the physical obstructions of the walls, and accordingly Section 19 could only apply to such part of the roads as was not covered by the walls. The Corporation could not take what was physically a cul-de-sac and make it a street joining another street on the other side of the wall. The whole basis of the Corporation's argument depended on the proposition that the walls were not rightfully there. That was not so, for the reasons he had given. He thought that the judgment of Mr. Justice Bennett was right and that the appeal failed and should be dismissed.

The Lords Justices concurred.

Mr. C. Harman, K.C., and Mr. Wilfrid Hunt appeared for the appellants; and Mr. Erskine Simes and Mr. C. E. Scholefield for the respondents.

TEMPORARY ARCADING

AN OXFORD-STREET PROPOSAL.

A SCHEME for a covered arcade, to be constructed on the north side of Oxford-street from Marble Arch to Tottenham Court-road, has been put forward by Mr. Donald Hamilton, L.R.I.B.A., F.S.I., and has, we understand, been accepted in principle by several of the traders. The scheme has been submitted to the Home Office, and to Marylebone Borough Council. Mr. Hamilton describes his plan as follows:—

In an endeavour to enable the traders to continue their sales in a normal way during black-out hours, a comprehensive plan has been formulated, and the essential details are that a covered arcade, made from economical and available materials, be constructed on the north side of Oxford-street from Marble Arch to Tottenham Court-road.

The roof would be fixed in position for the duration of the war, and the front would be heavy canvas screens, either in the form of blinds or fixed or removable curtains, whichever were available and reasonable in cost. These blinds would be drawn back during the day and closed at night. Light-locks would be formed at bus stops and crossings, and a continuous market would be formed which would enable the business to be carried out in a more or less normal manner.

It is anticipated that the cost would amount to about £4 per foot run of frontage, dependent upon availability of materials, Government and other requirements. This cost will be paid by the occupiers concerned. A pool of all the traders will be formed if the scheme materialises, and the arrangements for mutual benefit would be dealt with by their representatives accordingly. If all agree to take part, the area will be well advertised in the daily Press, at very small cost per trader, and thus a further incentive would be provided for people to stop in London to do their shopping.

From the point of view of any local authority, the scheme is one which will help to protect the rates, and the fixed points for road crossings at night should be an advantage to the Ministry of Transport. The screens will also prevent pedestrians from stepping off the pavement in front of traffic during the black-out. This section of Oxford-street has been picked first, as being the most important centre in the country, and some idea of the necessity of the scheme can be realised when one considers that the rental value of the shops alone along this stretch must amount to nearly £1,000,000 per annum. Apart from the loss to the shopkeepers themselves, the loss of sales affects an enormous number of manufacturers throughout the country, and it is hoped that the scheme will receive approval so that no loss to industry may be caused through this great handicap.

Views and a constructional detail are given on page 812.

SOCIETIES & INSTITUTIONS

INSTITUTION OF STRUCTURAL ENGINEERS.

The Graduateship and Associate-Membership Examinations of the Institution of Structural Engineers, which had been postponed, will now take place on February 7-9 next, at London, Birmingham, Bristol, Manchester, Middlesbrough, Norwich, Edinburgh and Glasgow. The examinations will also be held in Australia, New Zealand, South Africa, Rhodesia, Straits Settlement, Malaya, India, Palestine and Egypt on the same dates.

The July examinations of the Institution will be held, as usual, on the first Wednesday, Thursday and Friday of July (3-5), in Great Britain and overseas. Candidates who have already registered with the Institution will be notified individually of detailed arrangements. Prospective candidates should apply for full particulars to the Secretary, the Institution of Structural Engineers, at 11, Upper Belgrave-street, London, S.W.1.

The following have been elected to membership of the Institution:—

AS STUDENTS: H. R. D. Beecham, C. L. Fountain, H. D. Huntley, P. S. Rodrigues, R. H. Schaffner, J. D. Shepherd, N. W. Shiner, R. H. T. Squire, W. K. Turner, and R. Vickers.

AS ASSOCIATE-MEMBERS: F. G. Etches, G. L. Goulden, J. J. O'Donovan, F. Butler, T. Mitchell, S. M. Reisser, S. H. Lewis, and I. Brooks.

AS ASSOCIATES: F. W. Dark, J. Caldwell, C. H. B. Kahn, C. G. Monro, and V. J. Wenning.

AS MEMBERS: D. K. Glass, C. P. Lange, A. Martin, J. S. Mason, I. Olexinzer, and C. M. Spielman, A. Wild, E. N. Horton, S. J. Squire, and A. S. Hall.

SANITARY INSPECTORS' CERTIFICATES.

The Royal Sanitary Institute and Sanitary Inspectors' Examination Joint Board have reluctantly decided that it is impossible in present circumstances to insist on attendance at an approved course and have temporarily suspended Regulation 3 for the Sanitary Inspectors' Examination. Neither the standard required from candidates nor the scope of the examination will be altered.

Intending candidates should attend a course if it is possible. If it is impossible they are at liberty to obtain the instruction given at approved courses in any way available to them.

NEWS ITEMS

A.A.S.T.A.

The A.A.S.T.A. announces that although a War Executive Committee was set up at the beginning of September it has not, in fact, been necessary to omit any of the monthly Council meetings, which will, therefore, continue to be held as usual.

The Institution of Electrical Engineers.

Mr. Johnstone Wright has issued his inaugural address to this Institution, and copies may be obtained from Savoy-place, W.C.2. This body has also published a history of the Institution, from 1871-1931, the author being Mr. Rollo Appleyard. Copies may be obtained (price 7s. 6d. to members, or 18s. 6d. to the public) from the Secretary, at the above address.

War-time Legislation.

The Chartered Surveyors' Institution have issued two memoranda, on the Civil Defence Act, 1939, and the Landlord and Tenant (War Damage) Act, 1939, respectively. These memoranda have been prepared by Mr. H. F. Bidder, barrister-at-law, on the instructions of the Council of this Institution, for the guidance of members of the Institution. It is felt, however, that these pamphlets should be given as wide a sphere of usefulness as possible, and their sale has been opened to the general public at a cost of 5s. each.

Electrical Contracting Industry: Wages Agreement.

The National Joint Industrial Council for the Electrical Contracting Industry announces a Wages (War Adjustment) Agreement between the National Federated Electrical Association and the Electrical Trades Union, November 24, 1939, supplementary to the agreements dated August 2, 1935 and June 14, 1939.

For the period of war the rates of wages contained in the June, 1939, Agreement are stabilised as under :—

Grade "A."—1s. 9½d. per hour. (This rate is subject to an addition of 5 per cent., making the total rate 1s. 10½d.)

Grade "B."—1s. 7½d. per hour. (The rate for Mersey district (as defined in the Mersey District Working Rules, Note to Rule 11) is subject to an addition of one penny per hour in lieu of travelling time.)

Grade "B2."—1s. 7d. per hour.

Grade "C."—1s. 6½d. per hour.

Kidderminster Builders' Appeal.

Kidderminster and District Association of Employers in the Building Trade has forwarded the following resolution to Sir John Wardlaw-Milne, M.P. for the division : "This Association is of opinion that all Government work should be advertised and thrown open to tender, and, where possible, local firms should be given the contract.

"War conditions have caused almost a stoppage of the building industry in this district, and the following factors are making matters still more difficult : (1) Shortage of timber and (2) increased prices of all other materials.

"With regard to 1, it is suggested that for Army and Air Force requirements substitute materials should be used for timber in the construction of huts, stores, etc.

Figures produced at a meeting of the Association showed that there was a reduction of 25 per cent. in the number of people employed in the week ended November 30, compared with the week ended August 31.

Small Manufacturers: Meeting Arranged.

Mr. J. A. R. McDonald, of 30-40, Dalling-road, Hammersmith, W.6, writes : "I have been very pleased to note that the response has been so good from the small manufacturers to my appeal to them to assist me in the organising of the small manufacturers in all industries. I am holding a meeting on Tuesday, December 19, at the Charing Cross Hotel, Strand, at 2.15, and I hope we shall appoint a strong national committee representing all branches of industry. I shall be glad to hear from all readers who have not written, saying whether they wish to attend and giving me their opinions. I believe we shall greatly help ourselves and shall be able to keep our workshops and factories busy provided we are an organised body."

A.R.P. SCHEMES

AUDENSHAW.—For steel air raid shelters for U.D.C. following contractor accepted, A. V. M. Deane, Guide-lane, Audenshaw. Plans by F. Cowperthwaite.

BEDDINGTON AND WALLINGTON.—The T.C. approved an amended scheme for alteration and extension to the cleansing station at Beddington Park to provide messing and sleeping accommodation for rescue parties, decontamination squads and stretcher parties, at £450. Plans by the B.S. B.S. reported that the Air Ministry had now agreed to the construction of two trench units, each accommodating 50 persons, on a site adjoining the Koh-i-Noor factory. B.S. is to invite tenders from selected contractors for trench selters and surface shelters as soon as official sanction is received.

BELFAST.—For structural alterations at Academy-street first-aid post for the Corporation, following tenders accepted : Building, Churchill Building Works, Ltd., £1,689; heating, Thos. Crowe, Ltd., £322; plumber, J. Summerville, £269, and electrical, Pollock, Gregg and Gordon, £139.

BLYTH.—T.C. to build domestic surface shelters for 14,000 people. Contracts are not settled.

BRIGG.—U.D.C. accepted tender for two shelters. Tenders on page 839.

CHESTERFIELD. — F. Durham, New Whittington, Chesterfield, contractor, at £1,020, for 4 protective combined police-boxes and air raid shelters in Taptonview-road, Chatsworth-road, Jawbones-hill, and Sheffield-road, for the T.C.

CROYDON.— C.B. accepted tender for shelter at the Central Polytechnic, at £309.

DAGENHAM.—T.C. recommended the tender of Allen Fairhead and Son, Ltd., of Enfield, at £4,182 for a decontamination block at the proposed central depot. Plans also approved for United Dairies, Ltd., for shelters in Broad-street.

DARLINGTON.—Eleven Darlington firms are sharing the work of building school shelters for E.C. T.C. to apply for sanction to borrow £4,786 for further school shelters.

DARTFORD.—R.D.C. approved plans for shelters at 16 schools in the rural district for the Kent E.C.

DEPTFORD.—B.C. recommend application to M.H. for borrowing £30,000 for A.R.P. work. Sanction of both the Minister of Home Security and the M.H. received for first aid post on site in Evelyn-street acquired for baths.

EAST HAM.—C.B. placed contract with the London Co-operative Society, Ltd., for fifty surface shelters in Little Ilford. Plans have been passed for the following : Shelter, 226, High-street North, J. Lyons and Co., Ltd.; six shelters, Boleyn Castle estate, Green-street, Marshall and Partners; five shelters, Nos. 1, 16-18, and 33, High-street North, and 355, Barking-road, London Co-operative Society, Ltd.; shelter, 622, Romford-road, Boots, Architect's Dept.; shelter, Johnson's Passage, Green-street, F. W. Woolworth and Co., Ltd.

W. C. YOUNGMAN LTD
WANDSWORTH WORKS
WANDSWORTH ROAD
LONDON S.W.8

ENFIELD. — For cleansing station at Carterhatch-lane council depot, for the U.D.C., a contract has been placed with Townsend and Collins, Ltd., 2, Brick-lane, Enfield, at £2,873.

FINCHLEY. — Contracts amounting to £9,939 for building overground air raid shelters at schools have been accepted by Finchley Council. Messrs. E. S. Moss, Ltd., 159, Brent-street, N.W.4; Comben and Wakeling, 603, Kenton-road, Kenton; Tant and Son, 2, Stanhope-avenue, N.3, and Compton Bros., Ltd., 143, Crouch Hill, N.8. The plans by the S.

FINSBURY. — B.C. propose Edmund Nuttall, Sons and Co. (London), Ltd., for construction of undermentioned concrete shelters, as follows : King-square, 12s. 6d. per sq. foot; Percival-street, 14s. 2d. per sq. foot; White Horse-alley, 14s. 2d. per sq. foot, and erection of 319 shelters at £1 10s. per standard unit, and shelter in Finsbury-sq. for the accommodation of 2,000 persons, at £14,000. Mr. G. R. Falkiner Nuttall, architect. Council approved the adaptation or construction of further shelters, at £4,735. Plans passed for building at the rear with A.R.P. shelter, at 108-110, Central-street.

FULHAM.—For public shelter at Burlington House, Burlington-road, the B.C. has accepted the tender of W. J. Marston and Son, Fulham, £356. B.S. is to erect shelter in the highway at Vanston-place, between the Co-operative Society's premises and St. John's Churchyard, at £350.

FULHAM.—An air raid shelter capable of accommodating 427 is to be incorporated in the Fulham-road housing scheme, at £2,300, by T.C.

GLASGOW.—The Corporation Housing Department has approved of the plans for surface air raid shelters to accommodate 8,200 people in Barrington-drive, Great Western-road, and Woodlands-road.

HAMILTON.—The Corporation is to erect 30 shelters from plans by the Burgh Architect, W. Allison.

HEBBURN-ON-TYNE. — U.D.C. received sanction to build another 922 domestic surface shelters, at £22,010. E. G. Lediard, S. Sanction also received to build report and control centre, at £850. For 19 public shelters for U.D.C. Tarslag, Ltd., Stockton-on-Tees, are the contractors, at £2,439.

HENDON.—T.C. are to provide a first-aid post at the clinic at The Broadway, West Hendon, at £860, and the same at the Central Hendon clinic, The Burroughs, at £551. Proposal of the Managers of St. Mary's R.C. school for a shelter above ground for 50 children was approved. The work will be carried out by Messrs. Comben and Wakeling, Ltd. Quotation of Messrs. Roger Malcolm, Ltd., amounting to £116, for converting the basement of St. Paul's Church into a shelter for children attending the school has been approved. Construction of surface shelters approved : Groups 1 and 2, Roger Malcolm, Ltd., £1,068 and £1,068; groups 3 and 6, H. Lloyd, £1,120 and £1,100; group 4, Melsom and Rosier, £1,136; and group 5, Garsubil, Ltd., £1,168. M.H. sanctioned £59,500 for shelters for Hendon elementary schools. For cleansing stations at Hendon-grove, Hendon, and Claremont-road, Cricklewood, the tender of the Building and Public Works Construction Co., Ltd., at £6,474 15s. for Claremont-road, accepted, and Hendon-grove, Garsubil, Ltd., at £6,703. For first-aid post at Hendon Cottage Hospital, the tender of the Building and Public Works Construction Co., Ltd., of Swindon, amounting to £2,060 19s., accepted. First-aid post at Isolation hospital. Tender of the Building and Public Works Co., Ltd., at £2,068 8s., accepted.

LIVERPOOL.—Subject to the approval of the B. of E. the E.C. to arrange for the provision of shelters at seven secondary schools, at the Holt High Schools, and 13 elementary schools and three institutes. Plans by City Architect and Director of Housing to provide accommodation for 200 persons at Colquitt-street buildings at approximately £575, and for 50 in the existing basement at the Hostel in Yew Tree-road, at approximately £125.

MANCHESTER.—T.C. recommend the following shelters on land in Mount-road, Gorton; on the site of the proposed library at Burnage; on land fronting Princess-road; corner of Moston-lane and Victoria-

avenue East, New Moston; junction of Kingsway and Moseley-road; junction of Kingsway and Talbot-road; Withington-road and Moss-lane West; 7-13, Mosley-street; 27-35, Granby-row; Temple-buildings; Victoria Hotel, and at various parks. A.R.P. work is to be carried out at 37 public elementary schools. Plans passed for shelters and foundations to proposed flats in Butler-street, Ravald-street, Maconic-street, Gunson-street, etc., Ancoats, and shelter to proposed additions to factory, Broughton-lane, Cheetham.

MONTROSE.—Shelters to cost £13,000 are to be erected, from plans by J. MacGregor, architect, Municipal-buildings, Forfar, at Arbroath, Carnoustie, Brechin, Forfar, Ladyloan, Montrose, Monifieth, Townhead, and St. Thomas.

NORTH RIDING.—C.C. approved plans for shelters at 11 schools in Cleveland area.

NORTHAMPTON.—C.B. approved plans for basement air raid shelter and extension to factory in Clarke-road for the Brook Manufacturing Co. (Northampton), Ltd.

ORPINGTON.—U.D.C. placed contract with Ringmer Building Co., Ltd., Ringmer, Lewes, Sussex, for cleansing station, at £7,677.

PENGE.—U.D.C. placed contracts with G. Wimpey and Co., Ltd., Hammersmith-grove, W.6, and J. C. Walker, Bromley, for surface, basement and tunnel shelters.

SCARBOROUGH.—E. Hunter, Belle Vue-works, Scarborough, and C. W. Haynes, Burniston-road, Scarborough, accepted for shelters in various school playgrounds for T.C. Plans by H. V. Overfield, B. and Water E.

SEAHAM.—U.D.C. to build domestic surface shelters to accommodate 8,000 people. J. B. Abbey, S.

SEDGEFIELD.—Home Office to make R.D.C. grant towards 29 public shelters. J. Tarren, E.

SHEFFIELD.—T.C. approved: Workshop and air raid shelters, Savile-street East and Greystock-street, Spear and Jackson, Ltd.; shelter, Glenalmond-road, Banner Cross Methodist Church Trustees; canteen and air raid shelters, Penistone-road, George Clark (Sheffield), Ltd.; workshops, offices, garages and air raid shelter, Penistone-road, Samuel Osborn and Co., Ltd.

STOCKTON.—T.C approved schemes for shelters in Mill-lane for 1,250; shelters at St. Cuthbert's and St. Joseph's schools for 500 children, and are preparing plans for shelters at halls, etc., for 400 children. A. Knolles, B.E.

STOURBRIDGE.—T.C. proposes conversion of rock cellars beneath Duke-street into an air raid shelter to accommodate 985 persons, at £1,873. Plans by G. N. Maynard, B.E.

SUNDERLAND.—Finance Committee approved £6,000 on A.R.P. at schools. W. and T. R. Milburn, 17, Fawcett-street, are architects for shelters at Kennedy's Cobden Exchange. No contracts let.

SWINTON AND PENDLEBURY.—For 37 shelters for the T.C. contractors are: Central Estates (Swinton), Ltd.; Palatine Builders and Estates, Ltd., Manchester; B. Nicholas, Jun.; C. Musker Bros., Ltd., Swinton; Ernest Tonge and Sons, Ltd., Swinton, at £7,000. Plans by A. Cordwell, B.E. and S.

TYLDESLEY.—Lancashire C.C. proposes shelters at Lemon-street Yard for scholars.

WALSALL.—T.C. proposes additional public shelters in Bridge-street and Lower Hall-lane, at £750; permanent trenches, Lichfield-road, Bloxwich, Pargeter-street and Dartmouth-avenue, at £750; surface shelters to accommodate 1,400, at £5,570. Plans by M. E. Habershon, B.S. T.C. approved decontamination centre and garages to house A.R.P. vehicles at Birchills and Bloxwich public works depots, at £900.

WALTON-LE-DALE.—U.D.C. propose public shelters, each to accommodate 50 persons, on various sites. Plans by J. Leigh, S., Bamber Bridge, near Preston.

WARDLE.—F. Dearden, Littleborough, recommended for acceptance for construction, in various parts of district, of 13 semi-sunk type brick public shelters, each to accommodate 50 persons, for U.D.C. Plans by E. A. Stewart, E. and S.

WEST HARTLEPOOL.—T.C. approved £8,864 for surface shelters for erection in the backyards of smaller houses.

WESTMINSTER.—City Council recommend additional trenches, Hyde Park (by Marble Arch), £5,300; additional surface shelters, St. James's-square, £2,650; additional surface shelters near Victoria Station, Buckingham Palace-road, Elizabeth bridge and Eccleston bridge, £7,500, and alterations, repairs, etc., at following depots: Adelphi, £145; Berkeley-square House, £110; Dolphin-square, £169.

WHITBY.—U.D.C approved plans for cleansing and first-aid station in Falconterrace, for North Riding C.C. U.D.C. approved £3,200 plan by S. for public shelters for 1,200 people.

WOOLWICH.—B.C. recommend following public shelters: Opposite "Welcome Inn," Well Hall-road, at £242, by B.E.; Well Hall-road, roundabout, at £374, by B.E.; Footscray-road and Green-lane, junction, at £206, by B.E.; Wickham-lane, near King's Highway, at £420, by B.E., and Wimpey and Co., Ltd.; The Crossways, Sidcup-road, at £206, by B.E.; junction of Bexley-road and Crown Woods-way, at £412, by B.E.; above the existing convenience in Ferry Approach, at £396, by B.E.; adaptation of the first-class swimming bath at Plumstead as a mortuary, at £255; surface shelters at Marshall's-grove, Harrington-buildings and Railway-court, at £341 10s., by J. E. Evans; communal shelter partly on the public highway and partly on land not taken over by the Council, at Foreland-street, at £394 11s., and shelters at Greenlaw-place, Ropeyard-rails and Warren-lane, at £490 18s.; shelters for the Council's employees at Strother's-wharf, at £67, and at Barnfield-road depot, Plumstead, at £78, by B.E. Plans passed for Edgar Lawes, E. and S., on behalf of Chislehurst and Sidcup U.D.C. for trenches and shelters, 272, Court-road, Eltham.

WORCESTERSHIRE.—C.C. placed following contracts for shelters: Halesowen grammar school, S. Perkins, Dudley, £361 10s.; Evesham school, J. C. Meades, Ltd., Evesham, £353; Prince Henry's grammar school, Evesham, W. White and Son, Evesham, £379; Oldbury County High school, W. Jackson (Langley Green), Ltd., Birmingham, £676; Crabbe-street school, Woolescote, J. Taylor and Son, Stourbridge, £359; Inkberrow, Redditch and Silver-street Wythall schools, J. and A. Millward, Ltd., Redditch, £700.

NEW CINEMA

SHOREDITCH.—Work is to proceed on the erection of a cinema on the site of the Olympia, in the High-street, for Associated British Cinemas, Ltd., 30, Golden-square, W.1. The architect is Mr. W. R. Glen, F.R.I.A.S., and Messrs. Marfix and Co., Ltd., 102, Albany-street, Regent's Park, N.W.1, are the building contractors.

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CONTRACTS OPEN

It should be noted that contracts with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. The dates at the head of paragraphs are those for the submission of tenders: a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: (A.) for A.R.I.B.A.; B. of E for Board of Education; B.C. for Borough Council; B.E. for Borough Engineer; B.S. for Borough Surveyor; C. for Clerk; C.B. for County Borough; C.C. for County Council; C.E for County Engineer; C.S. for County Surveyor; D.S. for District Surveyor; E. for Engineer; E.C. for Education Committee; (F.) for F.R.I.B.A.; (L.) for L.R.I.B.A.; M.W.B. for Metropolitan Water Board; M.H. for Ministry of Health; M.T. for Ministry of Transport; P.C. for Parish Council; R.D.C. for Rural District Council; S. for Surveyor; T.C. for Town Clerk and Town Council; and U.D.C. for Urban District Council.

BUILDING.

DECEMBER 15.

Newport (Mon) C.B.—Public air raid shelters in basements at 3, Emlyn-st., 47, Commercial-st., 153, Commercial-st. B.E. Dep. £1 1s. each.

DECEMBER 18.

Aberdeen T.C.—Work in connection with construction of two switch houses at Clayhills-yd., Portland-st. City Electrical E., Millburn-st.

Broadstairs U.D.C.—Lecture room for auxiliary fire service and living accommodation over existing fire station and public conveniences, St. Peter's Park-rd. S. W. Richardson, E. and S. Dep. £2.

Cork City E.C.—Pointing of parapet walls and sundry repairs at Technical Institute, Sharman Crawford-st. E. P. O'Flynn, architect, 50, South Mall. Dep. £5.

Department of Defence.—Enlargement of coal yard and provision of turf store, Portobello Barracks, Dublin. Minister of Defence, Dublin. Dep. £1 1s.

Hebden Royd U.D.C.—Converting stable building at Clegg Nook, Mytholmroyd, into public library. H. L. Bottomley, E. and S.

Hull T.C.—Propping and shoring up basement of Ferensway-chambs., Ferensway. City Architect.

Islington B.C.—Construction of A.R.P. domestic surface shelters to Home Office design. C. N. Courney, B.E. and S., Town Hall, Upper-st., N.1. Dep. £1 1s.

Llantrisant and Llantwit Fardre R.D.C.—Timber formed building at Rhiwfelan isolation hospital. T. Saunders, E. and S., Pontyclun. Dep. £1 1s.

Montgomeryshire E.C.—School at Meifod, County Architect, Newtown. Dep. £2 2s.

Runcorn R.D.C.—Two type "E" parlour houses, also about 47 yds. of stoneware pipe sewer 9-in. dia. with manholes, etc., situated at Ridding-la., Sutton. A. J. King, E. and S., Castle-pk., Frodsham, via Warrington. Dep. £1 1s.

Swinton and Pendlebury.—Steel shelters. B.E. and S.

Willesden T.C.—Certain works at 11, Cambridge-ave., N.W.6. F. W. Brown, Town Hall, Dyne-rd., N.W.6.

DECEMBER 19.

Harrow U.D.C.—Residence for second officer at fire brigade headquarters, Pinner-rd., North Harrow. H. W. Rackham, S. Dep. £3 3s.

Plymouth T.C.—Twenty communal surface shelters. J. Paton Watson, City E. and S. Dep. £2 2s.

DECEMBER 20.

Garforth U.D.C.—Demolition of derelict cottages at Cross Hills, Kippax, and clearing away of materials. B. J. Cornellus, E. and S.

Lindsey E.C.—Alterations to out-offices, etc., at Kirton Lindsey junior and infants' school. Philip W. Birkett (A.), County Architect, Lincoln. Dep. £1.

DECEMBER 21.

Ashford (Kent) U.D.C.—Two brick and concrete shelters, for Ashford Area Statutory Joint A.R.P. Committee. S., 5, North-st. Dep. £1 1s.

Camberwell B.C. — A.R.P. cleansing station at 52, Camberwell Green, S.E.5. Wm. Bell, B.E. and S. Dep. £2 2s.

Chertsey U.D.C.—Cleansing stations at Council's first-aid post, Church Hall, Church-rd., Addlestone. S.

Southend-on-Sea C.B. — Mortuary and works at Municipal health centre, Warrior-sq. R. G. Baxter, B.E. Dep. £1.

DECEMBER 23.

Workington Infirmary.—Extension, Oldfield, Simpson and Saul, architects, National Provincial Bank-chambs., Workington. Dep. £2 2s.

DECEMBER 26.

Near Treharris (Glam).—Certain work at South Wales and Monmouthshire Industrial school. Johnson, Richards and Rees, architects, Glebeland House, Merthyr Tydfil.

DECEMBER 27.

Loughborough T.C.—Extension of switchboard annexe at electricity generating station, Bridge-st. W. Granger, B.S. Dep. £1 1s.

JANUARY 6, 1940.

Hemel Hempstead R.D.C.—Fire station at Kings Langley. B. Ll. Stephenson, S., 2, Marlowes. Dep. £2 2s.

NO DATE.

Keighley T.C.—22 single persons' dwellings on King-st. estate. E. G. Felgate, Borough Architect, College-st. Dep. £2.

PAINTING, ELECTRIC LIGHTING, HEATING, &c.

DECEMBER 16.

Evesham and Pershore Joint Hospital Board.—Installation of heating apparatus and carrying out decorative and sanitary work at hospital buildings at Three Springs-rd., Pershore. J. Abbott, inspector, Municipal Offices, Evesham.

Wilton T.C.—Redecoration and repairs to 14 cottages, The Avenue. T. David, B.S.

DECEMBER 18.

Leeds T.C.—Heating and hot-water installations, electrical work, and steam main and condensate return pipe at new nurses' home, Killingbeck Hospital. G. F. Bowman and Sons, architects, 18, Park-rw. Dep. £2 2s.

Shrewsbury T.C.—Supplying and fixing five new swing entrance doors at general market. A. W. Ward, B.S.

West Riding C.C.—Washing down of walls in kitchen laundry, and new roof to stores, Batley Institution; electric lighting, Grenoside Institution; electric lighting, Pontefract Institution; additional lavatory accommodation, Ripon Institution.

Weymouth T.C.—Hot-water installation at 1, 2 and 5, Belvidere. B.S., 6, Pulteney-bldgs.

DECEMBER 20.

Rickmansworth U.D.C.—Installation of electric lighting in the trench shelters. S.

DECEMBER 21.

Birkenhead C.B. — Cleaning, painting, varnishing, etc., of part interior of town hall. B.E. and S.

DECEMBER 22.

Chesterfield E.C.—Electrical installations to A.R.P. trenches at 17 schools. Wilcockson and Cutts, architects, 12, Saltergate. Dep. £2 2s.

Taunton T.C.—Electric lighting installations. L. V. Turner. B. Electrical E.

Wirral U.D.C.—Painting work at fire station in course of construction at Heswall. S.

DECEMBER 28.

Barnsley T.C.—Provision and installation of low-pressure hot-water apparatus and steam boiler and other heating and steam-raising plant, and for alterations to existing plant and buildings at St. Helen Hospital and Institution. F. J. H. Wilson, consulting engineer, 26, Park-row, Leeds, 1.

MATERIALS, &c.

DECEMBER 18.

Birmingham.—25 metal frame windows for Boxfoldia, Ltd., Bournbrook, Birmingham, 29.

Cumberland C.C.—Refined tar, etc. C.S., Citadel-chambs., Carlisle.

Huddersfield C.B.—Cast iron pipes, etc. J. P. Beveridge, Waterworks Manager, 24, Ramsden-st.

Montgomery C.C. — Highway materials, W. O. Jones, C.S., Welshpool.

DECEMBER 19.

Notts C.C.—K. Tweedale, C., Nottingham.

DECEMBER 20.

Broadstairs U.D.C.—Timber and miscellaneous building materials. S. W. Richardson, E. and S., Pierremont Hall.

Cambridgeshire C.C. — Road materials. C.S., Cambridge.

DECEMBER 21.

Breconshire C.C.—Road materials. J. M. Richards, C.S., The Watton, Brecon.

DECEMBER 22.

Birmingham T.C. — Approximately 13¼ million common building bricks. H. J. Manzoni, City E. and S.

Wirral U.D.C.—Building materials. S.

DECEMBER 30.

Enniskillen U.D.C.—Broken stones and stone chippings. J. Donnelly, B.S.

JANUARY 3, 1940.

Isle of Ely C.C.—Highway materials, C.S., March.

JANUARY 6.

Bexley T.C.—Highway materials. B.E. and S.

ENGINEERING, IRON AND STEEL.

DECEMBER 18.

Edinburgh T.C.—Lift well at guttery at slaughterhouses, Gorgie. City Architect.

DECEMBER 19.

Wokingham R.D.C.—Preliminary well at Sheeplands pumping station, Wargrave. A. P. I. Cotterell and Son, engineers, 54, Victoria-st., Westminster, S.W.1. Dep. £2 2s.

DECEMBER 21.

Glamorganshire C.C.—Provision and laying, between Pantyquesta and existing reservoir, of approximately 1,150 lin. yds. of 3-in. dia. cast-iron spun pipes, or alternatively asbestos cement pipes, together with valves, meter and other appurtenant works, Hensol Castle Colony, near Pontyclun. Thomas and Morgan and Partners, engineers, 23, Gelliwastad-rd., Pontypridd. Dep. £2 2s.

Huntingdon R.D.C.—Sinking of trial well in Brampton. Pick, Everard, Keay and Gimson, engineers, 6, Millstone-la., Leicester. Dep. £1 1s.

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THESSALY RD. BATTERSEA. SW8

Inverness C.C.—Water supply scheme for Campbelltown. Geo. Gordon and Co., chartered civil engineers, 6, Queensgate, Inverness.

DECEMBER 23.

Tiverton T.C.—Laying and jointing of about 2,000 yds. of 8-in. dia. asbestos cement pipes and ancillary works near Tiverton, and construction of intake and pump house and ancillary works at Bolham, near Tiverton. N. G. Elliot, chartered civil engineer, Torquay. Dep. £1 1s. each.

DECEMBER 30.

Leeds T.C.—Electric goods lift. F. Nicholls, City Electrical Engineer, 1, Whitehall-rd.

JANUARY 5.

Ripon T.C.—900 lin. yds. of 9-in. dia. salt-glazed ware pipe sewers, together with manholes and ancillary works; also 1,300 lin. yds. of 7-in. dia. spun-iron socket pipes, and small brick pumping station, in parishes of Ripon and Sharow. Silcock and Simpson, engineers, 10, Park-rw., Leeds, 1.

JANUARY 9.

New Zealand Public Works Dept.—Steelwork for Hangatiki sub-station. Secretary, Public Works Supplies and Tenders Committee, Government-bldgs., Wellington.

ROAD, SEWERAGE AND WATER WORKS.

DECEMBER 16.

Manchester T.C.—Draining, kerbing, flagging, etc., Maywood-ave and Highbank-dri., Didsbury; Tanfield-rd., Riverton-rd., Malgam-dr., Moresby-dr., Glenlea-dr., and Cranston-dr., Didsbury; Parkfield-rd., New Moston, from Hawthorn-rd. to Hale-la., and Rochdale-rd., Blackley, from Victoria-ave. to the Middleton boundary. Highways Dept. (District Surveyor's Office). Dep. £1 1s.

Martley R.D.C.—Sewer, etc., in Old-rd., Clifton-on-Teme. A. G. Milner, C., 1, The Tything, Worcester.

Wellington R.D.C.—Works of sewerage and sewage disposal, in parish of Lilleshall. A. H. S. Waters, E., 25, Temple-row, Birmingham, 2. Dep. £3 3s.

DECEMBER 18.

Caerphilly U.D.C.—200 yds. of 6-in. stoneware and cast-iron sewer at Ystrad Mynach. T. H. Richards, E. and S. Dep. £2 2s.

Chesterton R.D.C. — Laying on water services to 40 houses in parish of Teversham. J. R. Oxenham, E. and S., County Hall, Hobson-st., Cambridge. Dep. 10s. 6d.

Eastbourne C.B.—Making up part of King's-ave. B.E.

Erith T.C.—Making up of portion of Harvel-cres. J. H. Clayton, B.E. and S. Dep. £1 1s.

Wirral U.D.C.—Approximately 74 yds. of 15-in. sewer at Pensby. S. Dep. £1 1s.

Wirral U.D.C.—Making up Oaklea-rd. (part of) and Brian-ave., Irby. S. Dep. £1 1s.

DECEMBER 21.

Blackpool C.B.—Laying-out and contruction of playing fields at Bispham. Parks Superintendent, Stanley Park. Dep. £1 1s.

DECEMBER 22.

Wenlock T.C.—200 lin. yds. of cast-iron pipes with hydrants, etc., Prince-st., housing site, Madeley. J. Hickman and Son, architects, Market-st., Wellington (Salop).

DECEMBER 23.

Aireborough U.D.C.—Making up of part of Moorland-cres., Guiseley. S., Micklefield House, Rawdon, near Leeds. Dep. £2 2s.

JANUARY 1.

Gloucestershire C.C.—Improvement works in Mortimer-rd, Filton; Walls Court-rd., South Filton, and Cleve-rd., Filton. C.S., Gloucester. Dep. £2 2s.

JANUARY 6.

King's Lynn T.C.—Laying of approximately 1,754 lin. yds. of 9-in. glazed stoneware pipe sewers. J. C. Matthew, B.E. Dep. £1 1s.

Public Appointments.

DECEMBER 20.

***Corby U.D.C.**—Working Foreman. E. and S.

DECEMBER 28.

Camberwell B.C. — Sewers Engineer. Darrell Musker, T.C.

DECEMBER 30.

***Walsall C.B.**—Repairs Supervisor. A. E. Bywater, Housing Manager.

CURRENT AND PROPOSED BUILDING WORK*

Bath.—T.C. to obtain tenders for repairs to 26, Paragon, and 18, Alfred-st.

Bexley.—T.C. to apply for further sanction: South Welling and Rochester-way foul sewer, £13,741; Bexleyheath cleansing and disinfecting station, £4,000; Bexley cleansing station, £1,706; Welling cleansing station, £1,706; £36,215 and £910 for extensions to central and other sub-stations.

Bolton.—E.C. to seek £6,400 loan sanction for completion of Crompton Fold junior school. T.C. proposes completion of new technical college, at £148,100.

Bridlington.—T.C. approved: C. Armitage, proposed alterations to premises Clarence-rd., for H.M.O.W.

Bury.—New technical college to be completed.

Chesterfield.—T.C. approved: Factory, Lordsmill-st., British Electrical Repairs, Ltd., 72, Bennett's-st., Manchester, 4; extensions to works for Sheepbridge Stokes Centrifugal Castings, Ltd.; shop and office extensions and A.R.P. shelters in Gluman-gate for Independent Order of Rechabites Society; additions "Royal Oak" inn, Chatsworth-rd., for Brampton Brewery Co., Ltd., Brampton. Rollinson & Son, architects, Corporation-st.

Dartford.—R.D.C. approved: Baldwin Instrument Co., Ltd., Brooklands, Dartford, workshop, Brooklands.

Devon.—E.C. approved remodelling of Halberton council school, at £2,000.

Doncaster.—Airport Committee proposes headquarters for air cadets.

Dudley.—T.C. approved extensions to galvanising works, Walker Bros., Ltd., Cradley-rd., Netherton.

Durham.—"Beard Hotel," Middle Accrington, Durham, belonging to Tadcaster Brewery Co., to be rebuilt. Architect, J. G. Paulson, 25, Ropergate, Pontefract.

East Ham.—C.B. recommend B.E.'s estimate, amounting to £143, for internal decorations at Scattered Homes.

Eccles.—T.C. approved works additions, Shakespeare-cres. C. & W. Pickup, Shakespeare-cres., Patricroft.

Finsbury.—B.C. approved: 131-135, Pentonville-rd., six-storey basement warehouse extension and enlargement of second floor; Sadler-st. housing scheme area, bounded by Rosebery-av., Rydon-cres. and Lloyds-row, eight one-storey and two four-storey blocks of flats and a one-storey laundry and refuse disposal station; Myddelton-sq. and Arlington-way, two blocks of flats; Exchange-st. and Dingley-rd., basement and ground storey extension at existing factory building; 34-44, Pentonville-rd., and 21-23, White Lion-st., one-storey factory at rear; 57, Clerkenwell-rd., alterations to premises; 29-55, Gee-st., 59-65, Bastwick-st., and Ludlow-st., factory building; 95-97, White Lion-st., air raid shelter; 12-15, St. John's-la., and 10 and 12a, Albion-pl., building for use as office or warehouse; St. Luke's Printing Works, Old-st., addition to building; 10-11, St. John's-la., and 11-12, Albion-pl., building for office or warehouse; 11-13, Wakely-st., two-storey and basement addition.—Drainage plans passed: Insurance-st., Insurance House, G. L. Russell (A.), 1, Broad-st. Buildings, E.C.2; Myddelton-sq., St. Mark's Church, W. Silk & Son, Ltd., 13, Homerton High-st., E.9; Vernon-sq. school, L.C.C.

Grantham.—T.C. making application to M.H. for approval to 500 houses for persons of working classes.

Hampshire.—C.C. to spend £8,500 on improved office accommodation for County Treasurer's department.

Hendon.—T.C. to extend culvert at end of Penhurst-gdns., at £1,250.

Ilfracombe.—Council Harbour Committee received borrowing for £7,000 for reconstructing north-east corner of pier.

Keighley.—T.C. approved additions to works, Mytholmes-ln., Oakworth, for Vale Mills (Oakworth) Estate Co., Vale Mills, Oakworth; warehouse, Low Mill-ln., John P. Heaton & Co., mohair spinners, Low Mills, Keighley; cement store, Park Side Tannery, Parkrod-st., Israel Foulds & Sons.

Lancashire.—Foundation-stone of town of St. Christopher, proposed new garden village, been laid. Site just off main Preston-Blackpool road at Westby-with-Plumpton. Building to commence immediately and will be carried through under the supervision of Prof. S. D. Adshead, of London, and F. B. Lumb, architect, Blackpool.

Lancaster.—Mental Hospital Board to acquire Ridge Farm, for proposed new admission hospital. R.D.C. approved farm buildings and bungalow, Carr-ln., Middleton, H. S. Kamiya.

Leyton.—T.C. resolved that buildings on land in Church-rd. be demolished. B.E. and S. to invite tenders.

Liverpool.—City Council to make application to M.H. for sanction to borrowing £9,800 to complete erection by Corporation of ten factories at Edwards-la., Speke, and one at Long-la., Fazakerley, by direct labour.—Lease granted to Air Ministry of land fronting Edwards-la., Speke, for factory.—Plan for development of land on east side of Island-rd. South, Garston, approved.—Painting of "T" block, Belmont-rd. institution, at £160, approved.—City E. and S. re-submitted interim development application for permission to construct 'bus station on land lying between Skelhorne-st., Bolton-st. and Hilbre-st.—Application of Withnell U.D.C. to erect public shelter on land in Dole-la., Brinscall, granted.—Repairs to various farm buildings at Hale estate, at £200, approved.—Application to be made to Electricity Commissioners for sanction to borrowing £6,000 for sub-station buildings at Clarence Dock power station.

4-443A

Liverpool.—Plans passed by Corporation: Extension to warehouse and office, 72/74, Stanhope-st., W. A. Barnes & Son (Builders), Ltd., for Peter Walker (Warrington) and Robert Cain & Sons, Ltd.; factory building, Long-ln., for Messrs. Hegnerts; ambulance garage, Upper Stanhope-st. and Hampton-st., H. J. Rowse, for Merseyside Hospitals Council; rebuilding of public-house, Broadgreen-rd., H. E. Davies & Son, for Sigson's Brewery Co., Ltd.; large laboratory building, Brownlow Hill and Brownlow-st., H. E. Davies, for University; preliminary drawings of three dual factories, Woodend-av., Corporation.

London (M.W.B.). — Board recommend modernising sanitary arrangements at Rammey Marsh pumping station and cottage, at £1,250, and repairing chimney shaft, Coppermills pumping station, at £144.

Manchester.—City Architect to provide covering for glass lantern light over dome of Great Hall in Central Library.—Garages to be erected at Wilbraham and Kingsway depots, at £500.—Sanction received to borrowing £1,688 for works at garage, Belle Vue-st., Gorton.—Plans passed: Electric power house, Pottery-la., Openshaw; chemical factory, Boardman-st., Ashton New-rd., Clayton; store and office to works, Crabtree-la., Clayton; additions to Ice Palace, Derby-st., Cheetham; alterations and additions to branch premises, 257-9, Barlow-rd., and Mount-rd., Levenshulme; Baptist Sunday school, Crossacres-rd., Northern Etchells; additions to factory, Harper-rd., Northenden; rebuilding of factory after fire, Vickers-st. and Pochin-st., Miles Platting; additions to motor showrooms and garage, Upper Brook-st. and Dover-st., Chorlton-upon-Medlock.

North Shields.—Although the work is to be proceeded with, no contracts placed yet for hotel at Chirton for J. Rowell and Son. Architects, J. Oswald and Son, Bradburn House, Northumberland-st., Newcastle-on-Tyne.

Preston.—T.C. approved: G. G. Baines, for English Electric Co., Ltd., smithy extension, and new works premises, Strand-rd.

Rhyl.—U.D.C. received sanction to proceed with electricity station.

Ripon.—City Council proposes public convenience in Kirkby-rd., at £240, and also extensions to cemetery.

Rocester (Staffs).—Board of Governors of Abbotsholme School proposing extensions. Plans by Oakley & Sanville, architects, 60, King-st., Manchester.

Rotherham.—T.C. approved alterations to works, Greasbrough-rd., for the Home Baking Co., Ltd.; workshop, Sheffield-rd., for Steel, Peech and Tozer, Ltd., Attercliffe.—A. Watson, builder, Grange Farm propose estate development at Hill Top-ln.—T.C. to seek £153,500 loan sanction for new switch-house, etc.—T.C. to proceed with improvements to Bawtry-Tinsley-rd., at £21,200.

South Shields.—Corporation received sanction to complete riverside development scheme. J. Reid, B.E.

Sunderland.—T.C. seeking approval to proceed with alterations and additions to the electrical installation at the Municipal Hospital, cost £2,739.—G. T. Brown and Son, Fawcett-st., architects for additions to offices of Wearmouth Coal Co., Ltd.—W. and T. R. Milburn, 17, Fawcett-st., architects for alterations to "Borough" hotel for North Eastern Breweries, Ltd.—F. L. Carrell, 32, Blandford-st., architect for extensions to premises of Moore's Stores, Ltd.—Marks and Spencer, Ltd., to make temporary extension to stores in High-st. West, to plans by Bell and Bell, West Hartlepool.

Warrington.—T.C. approved power station and sub-station works off Liverpool-rd. and distribution station, Factory-ln., J. Crosfield & Sons, Ltd., Bank Quay; extensions to offices and petrol installation, Wilderspool Causeway, F. Berry, builders, Causeway Works.

Wisbech. — Wisbech Isolation Hospital Joint Board proposes to seek permission of M.H. for cubicle block, at £4,000. Architects, Ward and Woolnough, South Brink.

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* See also List of Contracts Open.

** **In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st DECEMBER, 1939

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Craftsmen.	Labourers.
Aberavon	1/8	1/3½
Aberdare	1/8	1/3½
Abergavenny	1/7½	1/2½
Abingdon	1/6½	1/2
Accrington	1/8	1/3½
Aldeburgh	1/4½	1/0½
Aldershot	1/6½	1/2
Alfreton	1/8	1/3½
Alnwick	1/7½	1/2½
Altrincham	1/8	1/3½
Amble	1/7½	1/2½
Amersham	1/6½	1/2
Ammanford	1/8	1/3½
Andover	1/6	1/1½
Ardingley	1/6	1/1½
Arundel	1/6	1/1½
Ascot	1/6	1/1½
Ashby-de-la-Zouch	1/6½	1/2
Ashford (Kent)	1/6	1/1½
Ashford (Middlesex)	1/8	1/3½
Ashington	1/7½	1/2½
Ashtead	1/8	1/3½
Ashton-under-Lyne	1/8	1/3½
Aylesbury	1/6	1/1½
Aylsham	1/5	1/1
Bagshot	1/6	1/1½
Banbury	1/6	1/1½
Barnsley	1/8	1/3½
Barnstaple	1/6	1/1½
Barrow-in-Furness	1/8	1/3½
Barry	1/8	1/3½
Basingstoke	1/6	1/1½
Bath	1/7½	1/2½
Batley	1/8	1/3½
Beaconsfield	1/6½	1/2
Beccles	1/4½	1/0½
Bedford	1/7½	1/2½
Berkhamsted	1/6	1/1½
Berwick	1/7½	1/2½
Beverley	1/8	1/3½
Bexhill-on-Sea	1/6½	1/2
Bideford	1/6	1/1½
Biggleswade	1/5½	1/1½
Billericay	1/5½	1/1½
Birchington	1/6	1/1½
Birkenhead	‡§1/10	¶
Birmingham	1/8	1/3½
Bishop Auckland	1/8	1/3½
Bishops Stortford	1/7	1/2½
Blackburn	1/8	1/3½
Blackpool	1/8	1/3½
Blyth	1/8	1/3½
Bognor Regis	1/6	1/1½
Bolton	1/8	1/3½
Bournemouth	1/7	1/2½
Bracknell	1/6	1/1½
Bradford	1/8	1/3½
Bradford-on Avon	1/5*	1/1
Braintree	1/6	1/1½
Brentwood	1/7½	1/2½
Bridgwater	1/6½	1/2
Bridlington	1/7½	1/2½
Brighouse	1/8	1/3½
Brighton	1/7	1/2½
Bristol	1/8	1/3½
Broadstairs	1/6	1/1½
Bromsgrove	1/7½	1/2½
Buckley	1/8	1/3½
Bungay	1/4	1/0½
Burnham-on-Crouch	1/4½	1/0½
Burnley	1/8	1/3½
Burslem	1/8	1/3½
Burton-on-Trent	1/8	1/3½
Bury	1/8	1/3½
Bury St. Edmunds	1/5½	1/1½
Buxton	1/7½	1/2½
Byfleet	1/6½	1/2
Cambridge	1/7½	1/2½
Canterbury	1/6	1/1½
Cardiff	1/8	1/3½
Carlisle	1/8	1/3½
Carnforth	1/8	1/3½
Castleford	1/8	1/3½
Caterham	1/8	1/3½
Chard	1/5*	1/1
Chatham	1/7	1/2½
Chelmsford	1/7½	1/2½
Cheltenham	1/7	1/2½
Chepstow	1/7	1/2½
Chertsey	1/7	1/2½
Chester	1/8	1/3½
Chesterfield	1/8	1/3½
Chichester	1/6	1/1½
Chorley	1/8	1/3½
Cirencester	1/5½*	1/1½
Clacton	1/6	1/1½
Cleveleys	1/8	1/3½
Clitheroe	1/8	1/3½
Cobham (Surrey)	1/7	1/2½
Colchester	1/7½	1/2½
Colwyn Bay	1/7	1/2½
Congleton	1/7½	1/2½
Coventry	1/8	1/3½
Cranbrook	1/6	1/1½
Cranleigh	1/6	1/1½
Crawley	1/6	1/1½
Crewe	1/7½	1/2¾
Cromer	1/5	1/1
Crowborough	1/6	1/1½
Cuckfield	1/6	1/1½
Darlington	1/8	1/3½
Darwen	1/8	1/3½
Daventry	1/6½	1/2
Deal	1/6	1/1½
Denbigh	1/6½	1/2
Derby	1/8	1/3½
Devizes	1/4½*	1/0½
Dewsbury	1/8	1/3½
Didcot	1/6	1/1½
Diss	1/4½	1/0½
Doncaster	1/8	1/3½
Dorchester	1/5½*	1/1¼
Dorking	1/6½	1/2
Dover	1/6	1/1½
Dovercourt	1/6	1/1½
Driffield	1/6½	1/2
Droitwich	1/7½	1/2¾
Dudley	1/8	1/3½
Dunstable	1/6½	1/2
Durham City	1/8	1/3½
Eastbourne	1/7	1/2½
E. Glam. (Mon. Val.)	1/8	1/3½
East Grinstead	1/6	1/1½
Edenbridge	1/6	1/1½
Ely	1/4½	1/0½
Epping	1/8	1/3½
Exeter	1/7½†	1/2¾
Exmouth	1/6½	1/2
Fakenham	1/5	1/1
Falmouth	1/6½	1/2
Fareham	1/7	1/2½
Faversham	1/6	1/1½
Felixstowe	1/7	1/2½
Filey	1/6½	1/2
Fleetwood	1/8	1/3½
Flint	1/8	1/3½
Folkestone	1/6	1/1½
Frinton-on-Sea	1/6	1/1½
Frome	1/5*	1/1
Gainsborough	1/7	1/2½
Gateshead	1/8	1/3½
Gillingham (Kent)	1/7	1/2½
Glossop	1/8	1/3½
Gloucester	1/7½†	1/2¾
Godalming	1/6	1/1½
Goole	1/8	1/3½
Gosport	1/7½	1/2½
Grantham	1/7	1/2½
Gravesend	1/7½	1/2½
Great Yarmouth	1/6	1/1½
Grimsby	1/8	1/3½
Guildford	1/6	1/1½
Guilsborough	1/6½	1/2
Halifax	1/8	1/3½
Hanley	1/8	1/3½
Harpenden	1/7	1/2½
Harrogate	1/8	1/3½
Hartlepools	1/8	1/3½
Harwich	1/6	1/1½
Haslemere	1/6	1/1½
Hastings	1/6	1/1½
Hatfield	1/7½	1/2¾
Haywards Heath	1/6	1/2
Hednesford	1/7½	1/2¾
Hemel Hempstead	1/7	1/2½
Henley-on-Thames	1/6	1/1½
Hereford	1/6*	1/1½
Herne Bay	1/6	1/1½
Hertford	1/7½	1/2¾
Heysham	1/8	1/3½
Hitchin	1/6½	1/2
Hoddesdon	1/7½	1/2¾
Holt (Norfolk)	1/4½	1/0½
Horley	1/6	1/1½
Horsham	1/6	1/1½
Horwich	1/8	1/3½
Huddersfield	1/8	1/3½
Hull	1/8	1/3½
Hunstanton	1/5	1/1
Huntingdon	1/5½	1/1½
Ilfracombe	1/6	1/1½
Ingatestone	1/6½	1/2
Ipswich	1/7½	1/2¾
Isle of Thanet	1/6	1/1½
Isle of Wight	1/5	1/1
Keighley	1/8	1/3½
Kenilworth	1/8	1/3½
Kettering	1/7½	1/2¾
Kidderminster	1/7½	1/2¾
King's Lynn	1/6	1/1½
Kirkham	1/8	1/3½
Knowle	1/7½	1/2¾
Lancaster	1/8	1/3½
Leamington	1/8	1/3½
Leatherhead	1/7	1/2½
Leeds	1/8	1/3½
Leicester	1/8	1/3½
Leighton Buzzard	1/5	1/1
Letchworth	1/6½	1/2
Lewes	1/6	1/1½
Lichfield	1/7	1/2½
Lincoln	1/8	1/3½
Littlehampton	1/6	1/1½
Liverpool	‡§1/10	¶
Llandudno	1/7	1/2½
Llanelly	1/8	1/3½
London—		
12 m. radius	1/9½*	1/4½
12-15 m. radius	1/9 *	1/4
Long Eaton	1/8	1/3½
Longton	1/8	1/3½
Loughborough	1/8	1/3½
Louth	1/6½	1/2
Lowestoft	1/6	1/1½
Luton	1/7½	1/2¾
Macclesfield	1/7½	1/2
Maidenhead	1/6½	1/2
Maidstone	1/6½	1/2
Malvern	1/6½	1/2
Manchester	1/8	1/3¾
Manningtree	1/5	1/1
Mansfield	1/8	1/3½
March	1/5	1/1
Margate	1/6	1/1½
Market Harborough	1/7	1/2½
Matlock	1/6½	1/2
Melton Constable	1/4½	1/0½
Melton Mowbray	1/7	1/2½
Merthyr	1/8	1/3½
Middlesbrough	1/8	1/3½
Middleton	1/8	1/3½
Middlewich	1/7½	1/2¾
Milford Haven	1/6½	1/2
Morecambe	1/8	1/3¾
Morley	1/8	1/3¾
Mundesley	1/5	1/1
Nantwich	1/7½	1/2½
Nelson	1/8	1/3¾
Newark-on-Trent	1/7½	1/2¾
Newbury	1/6	1/1½
Newcastle-on-Tyne	1/8	1/3½
Newcastle-u.-Lyme	1/8	1/3¾
New Forest	1/5	1/1
Newmarket	1/6	1/1½
Newport, Mon.	1/8	1/3½
Newport Pagnell	1/6	1/1½
Northampton	1/8	1/3¾
Norwich	1/8	1/3½
Nottingham	1/8	1/3½
Nuneaton	1/6½	1/2
Oakham	1/8	1/3¾
Oldham	1/8	1/3¾
Ormskirk	1/7½	1/2½
Oxford	1/6½	1/2
Oxted	1/7½	1/2¾
Paignton	1/7½	1/2¾
Peterborough	1/8	1/3½
Plymouth	1/8	1/3½
Pontefract	1/8	1/3½
Pontypridd	1/8	1/3½
Port Talbot	1/7½	1/2¾
Portsmouth	1/8	1/3¾
Preston	1/6	1/1½
Pulborough	1/6	1/1½
Ramsgate	1/7½	1/2¾
Reading	1/7	1/2½
Redditch (Northern)	1/6½	1/2
Redhill	1/6½	1/2
Ripon	1/8	1/3½
Rochdale	1/7	1/2½
Rochester	1/8	1/3¾
Rugby	1/5	1/1
Saffron Walden	1/7½	1/2¾
St. Albans	1/8	1/3½
St. Helens	1/5	1/1
St. Neots	1/5*	1/1
Salisbury City	1/7*	1/2½
Salisbury Plain	1/6½	1/2
Sawbridgeworth		
Saxmundham	1/4½	1/0½
Scarborough	1/7½	1/2½
Scunthorpe	1/8	1/3½
Selby	1/6½	1/2
Sevenoaks	1/5½	1/1½
Sheerness	1/8	1/3½
Sheffield	1/8	1/3½
Shipley	1/7½	1/2½
Shoeburyness	1/7	1/2½
Shoreham	1/7	1/2½
Shrewsbury	1/6	1/1½
Sittingbourne	1/7	1/2½
Skegness	1/6½	1/2
Sleaford	1/7	1/2½
Slough	1/7½	1/2¾
Southampton	1/7½	1/2¾
Southend-on-Sea	1/8	1/3½
Southport	1/8	1/3½
South Shields	1/6	1/1½
Spalding	1/7½	1/2½
Stafford	1/7	1/2½
Staines	1/7	1/2½
Stamford	1/6½	1/2
Stevenage	1/8	1/3½
Stockport	1/8	1/3½
Stockton-on-Tees	1/8	1/3½
Stoke-on-Trent	1/7½	1/2¾
Stourbridge	1/7½	1/2¾
Stourport	1/5	1/1
Stowmarket	1/7	1/2½
Stratford-on-Avon	1/6½†	1/2
Stroud	1/8	1/3½
Sunderland	1/8	1/3½
Sutton Coldfield	1/4½	1/0½
Swaffham	1/6*	1/1½
Swanage	1/8	1/3½
Swansea	1/6½*	1/2
Swindon	1/7½	1/2¾
Tamworth	1/6	1/1½
Taunton	1/6	1/1¾
Tenterden	1/8	1/3½
Thames Haven	1/5½	1/1½
Thetford	1/7½	1/2¾
Thorpe Bay	1/8	1/3½
Todmorden	1/6½	1/2
Tonbridge	1/7½	1/2¾
Torquay	1/6	1/1½
Totnes	1/5*	1/1
Trowbridge	1/5	1/1
Truro	1/6½	1/2
Tunbridge Wells	1/6½	1/2
Uppingham	1/6½	1/2
Uttoxeter	1/8	1/3½
Wakefield	1/8	1/3½
Walsall	1/8	1/3½
Walsden	1/6	1/1½
Walton-on-Naze	1/7½	1/2¾
Ware	1/5*	1/1
Warminster	1/8	1/3½
Warrington	1/8	1 3½
Warwick	1/7½	1/2¾
Wellingborough	1/7	1/2½
Welwyn	1/8	1/3½
Welwyn Gar. City	1/4½	1/0½
Wells (Norfolk)	1/8	1/3½
West Bromwich	1/7½	1/2¾
Westcliff-on-Sea	1/7	1 2½
Weston-super-Mare	1/7	1/2½
Weybridge	1/5½*	1/1½
Weymouth	1/7	1/2½
Whitby	1/6	1/1½
Whitstable	1/8	1/3½
Widnes	1/8	1/3½
Wigan	1/6½	1/2
Wigton	1/7½	1/2¾
Willington	1/8	1/3½
Wilmslow	1/6½	1/2
Winchester	1/6½	1/2
Windermere	1/7	1/2½
Windsor	1/5½	1/1½
Wisbech	1/6	1/1½
Witham	1/6½	1/2
Woking	1/6	1/1½
Wokingham	1/8	1/3½
Wolverhampton	1/5½	1/1½
Woodbridge	1/7½	1/2½
Worcester	1/6½	1/2
Workington	1/7½	1/2¾
Worksop	1/6	1/1½
Worthing	1/7½	1/2¾
Wrexham	1/5½	1/1½
Wroxham	1/6½	1/2
Wycombe	1/5	1/1
Wymondham	1/6½	1/2
Yeovil	1/8	1/3½
York		

* Painters 1d. less than other Craftsmen. † Painters ½d. less than other Craftsmen. ‡ Plasterers 1/10½.

¶ Tradesman's Labourers 1/4½ Navvies and General Labourers, 1/4.

§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

For Building Trade Wages in Scotland, see page 837.

PRICES CURRENT OF MATERIALS*

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry.
The softwood prices are the maxima established by the Timber Control Department.
At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities.
Lead can only be obtained for Government or A.R.P. work and urgent repairs.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads.

	£ s. d.
Best Stocks	4 15 0
Second Hard Stocks	4 8 0

Per 1,000. Delivered at London Goods Stations.

2½ in. Phorpres.	King's Cross Station. per 1,000. s. d.	To sites in W.C. District. per 1,000. s. d.
Pressed bricks	46 3	50 6
Cellular bricks	46 3	50 6
Keyed bricks	48 3	52 6
Cellular Keyed bricks	48 3	52 6
Rustic bricks	*66 3	*70 6
Cellular Rustic bricks	*66 3	*70 6
Single Bullnose	64 3	68 6
White bricks	*66 3	*70 6
Sandfaced bricks	—	75 6

* Subject to a special discount of 2s. per 1,000 ft. accompanied by order for Pressed.

White Midhurst Facing Bricks (delivered London site)	£ s. d. 3 12 6
Best blue Pressed Staffs	8 6 6
Do. Bullnose	8 16 6
Blue Wire Cuts	7 4 0

Best Stourbridge Fire Brick :—
2½ in. ..... 7 15 0 3 in. 8 15 0

GLAZED BRICKS—

Best White Ivory and Salt Glazed Stretcher	24 0 0	D'ble Str'tch'rs	32 10 0
		D'ble Headers	29 10 0
Headers	23 10 0	One side & two ends	33 10 0
Quoins, Bullnose and 4½in. Flats	30 10 0	Two sides & one end	34 10 0
		Splays and Squints	31 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.			
2" per yd. sup.	2 3	3" per yd. sup.	2 9
2½" " "	2 6	4" " "	3 1
CLINKER CONCRETE.			
2" per yd. sup.	1 6	3" per yd. sup.	2 0
2½" " "	1 8	4" " "	2 4
CRANHAM TERRA COTTA.			
2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½" " "	3 6	4" " "	4 7
HEMPSTEAD—KEYED TWO SIDES.			
12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

SAND.

Per yard super	d/d.	Free on site, London.
Thames Ballast	7 9	per yd.
Pit Ballast	7 3	" "
Pit Sand	9 9	" "
Washed Sand	10 9	" "
¾in. Shingle	8 0	" "
¾in. Broken Brick	12 0	" "
Pan Breeze	8 3	" "

delivered 2 miles radius Paddington.

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area in jute sacks (11 to ton), or paper bags (20 to ton) free (non-returnable) :—

	£ s. d.
4 ton loads and upwards site ..... Per ton	2 5 0
1 ton to 4 tons site	2 8 0
Alongside Vauxhall in 80-ton lots	2 2 6
"Ferrocrete" Rapid Hardening Cement :—	
4 ton loads and upwards site	2 11 0
1 ton to 4 tons site	2 14 0
Alongside Vauxhall in 80-ton lots	2 8 6

Stores in Reserved Bins at Works 1/6 ton extra.

NOTE.—Jute sacks are charged 1s. 6d. each and credited 1s. 6d. nett, if returned in good condition within three months, carriage paid.

"Aquacrete" Water Repellent, "Blue Circle" Cement, 30/- per ton extra on ordinary "Blue Circle" Portland Cement prices.

"Colorcrete" Nos. 1 and 2 Coloured Rapid Hardening Portland Cement in 1-cwt. paper bags free (non-returnable) in 1-ton lots and upwards site 3 14 0

"Colorcrete," not rapid-hardening, in 1-cwt. paper bags free (non-returnable), according to colour, from £7 to £15 10s. per ton.

"Snowcrete" White Portland Cement in 1-cwt. paper bags free (non-returnable)

1 ton and upwards site	8 15 0
Super Cement (Waterproof) paper bags free	3 15 0
Roman Cement £6 15 Keene's Cement, White	5 10 0
Parian Cement £5 10 " " Pink	5 2 6

Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	3 0 0	Sirapite, Coarse	3 10 0
" White	3 10 0	" Finish	3 18 0
Pioneer	3 10 6		
Super Carbo	2 7 6	4-ton loads and over London Area, paper bags free.	
Carbo Setting	2 12 6		
Best Ground Blue Lias Lime	1 17 6	Grey Stone Lime	2 2 0
		Chalk Lime	2 2 0
Granite Chippings	1 5 0	Hair per cwt.	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.

Stourbridge Fireclay in sacks 37s. per ton at rly. dep.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube .... s. d. 2 10½

BEER STONE—RANDOM BLOCK—

	£ s. d.
Free on rail at Seaton Station. per ft. cube	2 3
Delivered free on rail Nine Elms, S.R. "	3 1½

Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—

	s. d.
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 5
Do. do. delivered on road waggons as above stations, per ft. cube	4 6

White basebed, 3d. per ft. cube extra.

NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.

HOPTON-WOOD STONE—

	£ s. d.
F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb.	14 0
Sawn two sides	"22 6

HOPTON-WOOD STONE—

	£ s. d.
Sawn three or four sides	27 9

YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London.

	£ s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super) ..... per ft. super	5 0
6 in. rubbed two sides, ditto .. "	5 6
3 in. sawn two sides slabs (random sizes) ..... "	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) ..... "	1 6½
1½ in. to 2 in., ditto ..... "	1 3½

HARD YORK—
Delivered at any Goods Station, London.

	£ s. d.
Scrappled random blocks ..... per ft. cube	6 3
6 in. sawn two sides landings to sizes (under 40 ft. super) ..... per ft. super	5 1½
6 in. rubbed two sides, ditto .... "	6 1½
4 in. sawn two sides slabs (random sizes) ..... "	3 1½
3 in. ditto ditto ..... "	2 5
2 in. self-faced random flags ..... Per yd. super	7 6

CAST STONE.

Delivered in London are in full van loads, per ft. cube : Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube ..... 10 0 to	0 12 6
Dry American and/or Japanese plain Oak, per ft. cube	0 11 6
Dry sq. edged Honduras Mahogany, per ft. cube	0 15 0
Dry log-cut Honduras Mahogany, per ft. cube ..... 12 6 to	0 16 0
Dry Cuba Mahogany, per ft. cube	0 18 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 6
Dry Australian Walnut, per ft. cube	0 17 0
Dry Queensland Silky Oak, per ft. cube	0 11 0
Dry African Mahogany, per ft. cube	0 10 0
Dry African Whitewood, per ft. cube	0 8 0
Dry English Wainscot Oak, per ft. cube	0 16 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt. ..... 4 7 0 to	5 10 0

SOFT WOOD.

GOOD BUILDING DEAL.

Inches.	Per stan.	Inches.	Per stan.
4 × 11	£38 10	3 × 6	£31 10
4 × 9	38 10	3 × 11	38 10
4 × 8	35 10	2 × 11	38 10
4 × 7	35 10	3 × 9	37 10
3 × 8	32 10	2½ × 9	37 10
3 × 7	31 10	3 × 4½	30 0
2½ × 7	31 10	3 × 4	30 0

Having secured the Contract—
What about the Steel Scaffolding?

For the lowest Prices apply to the Oldest Firm in The Scaffolding Trade.

STEPHENS & CARTER LTD.
The British Steel Scaffolding Co.
Paddington Green, London, W.2.
Telephone No. PADDINGTON 7661 (6 lines).

PLANED BOARDS.

	£ s. d.		£ s. d.
1 × 11	£43 10	1 × 9	£39 10

PLAIN EDGE FLOORING.

Inches.	Per sq.	Inches.	Per sq.
⅝	22/6	1¼	38/-
⅞	25/-	1½	42/6
1	28/6		

TONGUED AND GROOVED FLOORING.

Inches.	Per sq.
1	29/-
1¼	38/6
1½	43/-

MATCHING (BEST)

Inches.	Per sq.
⅝	23/-
¾	25/-
1	29/-

Ins. BATTENS.	s. d.
¾ × 2 per 100 ft.	2 9

SAWN LATHS.	s. d
Per bundle	2 6

SLATES.

First quality slates from Penrhyn or Portmadoc. carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	31 5 0	18 by 10	16 10 0
22 by 12	26 5 0	18 by 9	14 17 6
22 by 11	23 12 6	16 by 10	14 7 6
20 by 12	23 2 0	16 by 8	11 6 0
20 by 10	20 15 0		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons ..... Per 1,000 f.o.r. London.

	£ s. d.
Best machine-made tiles from Broseley or Staffordshire district	4 2 6
Ditto hand-made ditto	4 17 6
Ornamental ditto	5 2 6
Hip and valley tiles (per dozen) Hand-made	0 8 6
Machine-made	0 8 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R.S. Joists, cut and fitted	£16 0 0
Plain Compound Girders	19 0 0
" Stanchions	21 0 0
In Roof Work	25 0 0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
½ in.	16 12 6	⅝ in. to ½ in.	15 2 6
⅝ in.	15 12 6	⅝ in. to 2½ in.	14 12 6

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £10 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Standard Wrot. Mild Steel Tubes. and Tubulars. Sizes. ⅛in. to ⅜in. %	Standard Flanges. Sizes. ⅛in. to 2in. %	Standard Fittings. ⅛in. to 2in. %
Gas	60	65	62½	58½
Water	57	62½	62½	55
Steam	53½	58½	51½	50
Gal, gas	50	55	51½	48½
Galv. water	45	50	43½	43½
Galv. steam	38½	43½	38½	40

C.I. HALF-ROUND GUTTERS—London Prices ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop. Ends
3 in.	1/2½	1/-	4d
3½ in.	1/3½	1/1½	4d.
4 in.	1/3½	1/2½	5½d.
4½ in.	1/4½	1/4½	6½d.
5 in.	1/7½	1/6½	7½d.

O.G. GUTTERS.

3 in.	1/6¾	1/4	4½d.
3½ in.	1/8¾	1/4	5½d.
4 in.	1/8¾	1/4½	6½d.
4½ in.	1/9¾	1/7½	7½d.
5 in.	2/3	1/10½	8½d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches. stock angles.
2 in.	1/9½	1/2½	1/9½
2½ in.	1/10½	1/4½	2/2
3 in.	2/4	1/8½	2/7½
3½ in.	2/9½	2/1	3/0½
4 in.	3/2½	2/6	3/7½

NETT PRICES.

Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

	Pipe. s. d.	Bends, stock angle. s. d.	Branches. stock angles. s. d.
2 in. per yd. in 6 fts.	3 0½	2 2	2 7½
2½ in. "	3 7½	2 5	3 3½
3 in. "	3 10½	2 7½	3 11
3½ in. "	3 11½	3 2½	4 6
4 in. "	4 3½	3 7½	5 2½

L.C.C. COATED DRAIN PIPES.—London Prices, ex Stock.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches. stock angles. s. d.
3 in. per yd. in 9 ft. lengths	4 8	5 6	8 9
cwt. qr. lbs.			
4 in. " 1 1 20	6 7	6 3	11 0
5 in. " 1 2 22	8 3	11 3	17 0
6 in. " 2 0 6	9 9	13 0	21 3

Gaskin for jointing 65/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd.)

IRON—	Per ton. £ s. d.	London. £ s. d.
Common Bars	12 15 0 ..	13 15 0
Staffordshire Crown Bars—		
Good merchant quality	14 10 0 to	16 0 0
Staffordshire Marked Bars	18 0 0 ..	19 0 0
Mild Steel Bars	12 18 0 ..	13 18 0
Steel Bars, Ferro-Concrete quality, basic price	14 8 0 ..	15 8 0
Hoop iron, basic prices	14 8 0 ..	15 8 0
„ Galvanised	24 8 0 ..	26 8 0

IRON—	Per ton in London. £ s. d.
Soft Steel Sheets, Black—	
Ordinary sizes, to 20 g.	16 5 0 .. 17 5 0
„ „ 24 g.	17 5 0 .. 18 5 0
„ „ 26 g.	18 5 0 .. 19 5 0
Sheets, Flat, Best Soft Steel, C. R. and C.A. quality—	
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	17 10 0 .. 18 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	19 10 0 .. 20 10 0
No. 1 quality £4 per ton extra.	
Flat and Galvanised Corrugated Sheets—	
Ordinary sizes 6 ft. to 9 ft. to 20 g.	18 5 0 .. 20 5 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18 15 0 .. 22 5 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	20 15 0 .. 22 15 0
Sheets, Gavanised, Flat, Best quality—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	19 5 0 .. 22 5 0
Best Soft Steel Sheets, 22 g. and 24 g.	20 5 0 .. 21 15 0
Best Soft Steel Sheets, 26 g.	21 15 0 .. 22 15 0
Cut Nails, 3 in. to 6 in.	19 0 0 .. 21 0 0

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	1 1
Strong sheet	„	1 3
Thin	„	1 4
Copper nails	„	1 3
Copper wire	„	1 3

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
29/- 45/- per doz.

CHROMIUM PLATED TOILET SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
40/- 59/- per doz.

SCREW DOWN STOP COCKS FOR IRON.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
31/- 44/6 75/- 175/- 250/- 396/- per doz.

SCREW DOWN STOP COCKS WITH TWO UNIONS FOR LEAD.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
42/6 65/- 102/- 195/- 210/- 510/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
7/6 9/- 14/- 24/- 37/6 54/- per doz.

HEAVY CROYDON BALL VALVES.

½ in. ¾ in. 1 in. 1¼ in. 1½ in.
33/6 55/6 85/- 165/- 237/- per doz.

CAPS AND SCREWS.

1¼ in. 1½ in. 2 in. 3 in. 3½ in. 4 in.
9/- 11/- 16/6 29/- 42/- 45/- per doz.

BRASS FERRULES OF SLEEVES.

1½ in. 2 in. 3 in. 3½ in. 4 in.
9/6 11/6 20/6 26/- 37/- per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

1¼ in. 1½ in. 2 in. 3 in.
8 lb. Lead P... 17/6 23/- 32/6 66/6 per doz.
8 lb. Lead S... 21/6 27/6 39/6 73/- per doz.

SOLDER.—Plumbers', 1/2, Tinmen's, 1/4, Blowpipe, 1/6 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in drums	per gallon	0 3 10
Boiled „ „ in drums	„	0 4 2
Turpentine, in drums (10 gals.)	„	0 6 0
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.)		53 0 0

Extra for 1-cwt. kegs over 5-cwt. casks is 2/9 cwt.

GENUINE WHITE LEAD PAINT.

"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5-cwt. lots per ton delivered 72 10 0

Red Lead, Dry (packages extra)	per ton	45 0 0
Best Linseed Oil Putty	per cwt.	0 15 0
Size. XD quality	fkn.	0 3 6

Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.

VARNISHES, &c.

		Per gallon.
Oak Varnish	Outside	0 14 0
Fine do.	„	0 16 0
Fine Copal	„	0 18 0
Pale Copal	„	1 0 0
Pale Opal Carriage	„	1 4 0
Best do.	„	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	„	0 18 0
Fine Copal Cabinet	„	1 2 0
Fine Copal Flatting	„	1 0 0
Hard Drying Oak	„	0 18 0
Fine Hard Drying Oak	„	0 19 6
Fine Copal Varnish	Inside	1 0 6
Pale do.	„	1 12 0
Best do.	„	1 2 6
Best Japan Gold Size		1 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY AND SELECTED GLAZING QUALITY.

per ft. super.		per ft. super.
18 oz. O.Q.	2½d.	32 oz. O.Q. 5½d.
18 „ S.Q.	2¾d.	32 „ S.Q. 6¼d.
24 „ O.Q.	3¼d.	Obscured Sheet, 18 oz. 3d.
24 „ S.Q.	3¾d.	„ „ 24 „ 4¼d.
26 „ O.Q.	3¾d.	Fluted 21 „ 9d.
26 „ S.Q.	4¼d.	Em'lld 18 oz., 5¼d., 24oz. 6¾d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft.
Rolled plate, ⅛ in.	5¾d.
Rough cast double rolled, ⅛ in.	6¼d.
Rough cast double rolled, ¼ in.	6¾d.
Figured rolled, etc., white	6¼d.
Figured rolled, etc., tinted	9¾d.
Rolled Sheet	6d.
White rolled cathedral	6d.
Tinted rolled cathedral	8¼d.

Rolled plate is the same price as rough cast double rolled.

	Per ft. s. d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ⅛ in. thick	0 10½
Wire Rolled, ⅛ in. thick	0 9½
Wired Cast, ⅛ in. thick	0 9½
"Calores" Sheet, 21 oz.	2 6
„ „ 32 oz.	4 0
„ Cast, ⅛ in. thick	0 10
„ „ 3/16 in. thick	1 0
„ „ ¼ in. thick	1 2

"VITA" GLASS.

	s. d.
Clearsheet—not exceeding 1 foot	1 0
„ „ 2 feet	1 3
„ over 2 feet	1 9
Polished plate not exceeding 1 foot	1 6
„ „ 2 feet	3 0
Cathedral—not exceeding 1 foot	1 0
„ larger size	1 6
Horticultural Sheet and Cathedral "Vita" Glass Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1 0
3/16 in. Wired Georgian Design. Sizes up to 96 inches long by up to 24 inches wide	2 6

LEAD, &c.

(Delivered in London.)	Per ton. £ s. d.
LEAD.—Sheet, English, 4 lb. and up	27 0 0
Pipe in coils	27 10 0
Soil pipe	32 0 0
Compo pipe	33 15 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills, per ton £16 15 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from December 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/8½	1/8	1/7½	1/7	1/6½	1/6
Labourers	1/3½	1/3¼	1/2¾	1/2½	1/2	1/1¾

Aberdeen	A	Dumfriesshire	A³	Inverness	*	Perthshire	A³
Ayrshire	A	Dundee	A	Inverurie	A¹	Peterhead	A¹
Banff	B	Dunoon	A	Kincardineshire	A³	Renfrewshire	A
Berwickshire	A²	East Fife	A	Kinross-shire	A	Rothesay	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A	Roxburghshire	A²
Broughty Ferry	A	Edinburgh	A	Midlothian	A	St. Andrews	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A	Selkirkshire	A²
Doune	A	Forfarshire	A³	Moray and Nairn	B	Stewartry	A²
Dunblane	A	Glasgow	A	Newport	A	Stirlingshire	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A²	Stornoway	A²
Dumfries	A¹	Hamilton	A	Perth	A	Tayport	A
						West Lothian	A

*This town has its own rates: Masons, 1/6½; Carpenters, 1/6½; Slaters, 1/6½; Plumbers, 1/7; Plasterers, 1/7½, but 1/8½ is paid owing to the scarcity at present; Painters, 1/6½ and Labourers, 1/2.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 835

THE SCOTTISH BUILDER

NEW BUILDINGS

CHRYSTON.—HALL.—Plans prepared by Messrs. Lennox McMath, architects, 128, Blythswood-street, Glasgow, for new Church of Scotland hall.

GLASGOW.—BUILDING.—The Dean of Guild Court has passed the following plans:—Corporation Housing Department—polishing shop at Lancefield-street; Ioco Rubber and Waterproofing Co., Ltd.—joiner's shop at their Netherton Works, Anniesland, Glasgow (architect, Mr. E. J. Dallachy, 173, Bath-street, Glasgow); Messrs. Brown, Stewart and Co., Ltd., paper manufacturers—boiler-house at their Dalmarnock paper mills, Springfield-road, Glasgow (architects, Messrs. O'Hagan and Co., 132, Renfrew-street, Glasgow).

GLASGOW.—RECONSTRUCTION.—The St. Rollox Cleansing Works, recently destroyed by fire, are to be reconstructed. Plans by Messrs. Leitch and Sharp, engineers, 65, Bath-street.

GLASGOW.—WORKSHOPS, ETC.—Messrs. Angus M. MacDougall and Co., Ltd., general contractors, Davaar-street, Bridgeton Cross, are to erect new workshops and storage accommodation at their own premises.

GLASGOW.—BUILDING.—Plans prepared for additions, including new annexe to the Gartlock Mental Institution. The architect is Mr. Thomas Somers, Office of Public Works, Glasgow.—At Crow-road, Partick, new showrooms are to be erected from plans by Mr. Harry Walker, 108, Crow-road, Partick, Glasgow.

TROON.—HOUSES.—The Corporation is to proceed with houses. The Burgh Architect, Mr. M. S. Brodie, has prepared the plans.

Now Published — Sixth Edition
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HOW TO ESTIMATE
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B. T. BATSFORD, LTD.
Architectural Publishers,
15, North Audley Street, London, W.1.

Cement Supplies.

The Secretary of the Cement Makers' Federation states that ample supplies of cement are now available for all purposes in the London area and other parts of the country. It is true that during the first six weeks of the war a local shortage of cement prevailed in certain districts, but this was due solely to the lack of transport facilities and has now been remedied. All orders are at present being supplied in full, and the industry is in a position to undertake, without difficulty, any further work.

TRADE NEWS

Adhesive A.R.P. Tape.

With reference to an article in *The Builder* of November 24, on "Glass in War Time," British Cellophane, Ltd., write to point out that they have produced a transparent tape, coated with a special plastic adhesive, which ensures that fragments of broken glass will hold together.

Watford Municipal Buildings.

The Ragusa Asphalte Paving Co., Ltd., of 25-27, Oxford-street, London, W.1, inform us that they carried out the whole of the asphalt work to the basement and the roofs of Watford Municipal Buildings, illustrated in our issue for December 1.

A Dividend Announcement.

The directors of Messrs. E. Pollard and Co., Ltd., have recommended the payment of the final dividend for the year ending December 31, 1939, less income tax, on all 7 per cent. cumulative preference shares issued and registered in the company's books on or before Monday, December 18, 1939. The dividend warrants will be posted on January 1, 1940.

Central Middlesex County Hospital, Willesden.

In connection with this building, which was illustrated in our last issue, we are asked to state that the modernisation works referred to on page 794 and the other smaller works, such as the erection of the lock-up garages for medical staff cars, were carried out by Messrs. Edward Plaistowe and Sons, Ltd., of Southall, Middlesex.

Concrete Containers for Sandbags.

The problem of protecting and, indeed, of preserving existing sandbag defences is rapidly growing more acute—as a brief tour of any large city will show. Special interest attaches, therefore, to a system which gives stability and permanence to sandbagging; such a system appears to be the "Structocrete" A.R.P. unit, devised by Messrs. Haywards, Ltd., and these reinforced units encase front, sides and, if desired, the back of sandbag walls. Not only do they offer assured stability and greater protection but they make the defence weather-resisting, improve the appearance, and are easy to assemble. Full details are obtainable from the company at Union-street, S.E.1.

DIARIES

"The Builder" Diary.

The Builder pocket diary for 1940 is now ready. Attractively bound in black leather, with gilt edges, its special value to architects and technicians (who may not always have access to their references) is a 60-page section of technical data, a new feature being an eight-page A.R.P. Supplement. Besides ample diary and memoranda space, there are 16 pages of ruled graph paper and maps of London and of England in sections. This is a first-rate half-crown's worth (2s. 8d. if ordered by post). Inquiries should be addressed to the Publisher, *The Builder*, 4, Catherine-street, W.C.2.

"Collins' Architects' and Builders'."

This diary presents in simple, practical form the generally accepted principles of construction as applied to buildings. Recognised standards of the trades are followed in making up each part. It has an interesting little section on architecture, with which we agree that "architecture is undergoing many changes and is at present a mixture of good and bad," but cannot concede that "France, once famous as a leader in architecture, can boast of few really clever modern designs." There is an excellent section of data, which is helped by diagrams and plans where necessary. It has also a section of general data, of which the moon's phases for 1940 is, in these days of "black-out," by no means the least important. The diary is available from Messrs. Wm. Collins and Co., Ltd., 144, Cathedral-street, Glasgow, C.4, at prices, according to binding, ranging from 1s. 3d. to 7s. 6d.

NEW BUILDINGS IN LONDON

BURNT OAK.—PREMISES.—Messrs. Romac Motor Accessories, Ltd., have had plans approved by the Wembley T.C. for alterations at Burnt Oak Market, in Edgware-road.

PENGE.—SCHOOL.—The U.D.C. has received approval of the Board of Education for alterations and improvements at Anerley school to be proceeded with.

SLOUGH (BUCKS).—HOSTEL.—Erection of new hostel in Belfast-avenue, for the Slough Social Centre, Centre Club, Farnham-road. Mr. G. Langley-Taylor, F.R.I.B.A., Beaconsfield, is the architect, and the Slough Estates, Ltd., Trading Estate, Slough, the contractors.

WEMBLEY. — FACTORY. — The T.C. has approved plans for extensions to factory in Beresford-avenue, for Messrs. Farina Dextrin, Ltd.

WESTBOURNE GROVE. — PREMISES.— Work recently commenced on rebuilding shop premises after fire, at Nos. 27-29, for Westbourne Furniture Galleries. Mr. H. A. Thomerson, 42, Queensway, W.2, is the architect, and the contract has been placed with Messrs. Yeomans and Partners, Ltd., 41, Upper Berkeley-street, W.2.

PUBLIC WORKS

STRATTON ST. MARGARET.—Wilts C.C. recommend the tender of R. J. Leighfield and Sons, Ltd., of Swindon, at £15,485 4s. 3d., for a nurses' home at St. Margaret's Hospital, Stratton St. Margaret.

OBITUARY

William John Bennett.

The death occurred suddenly on Friday morning, December 8, of Mr. William John Bennett, who had been associated with the wood-block flooring business for the past thirty years. He was the inventor of the slotting system of wood-block flooring known as "Bennett's Patent Bed Grip and End Tongue" system, and also of the "Tungit" patent system. He also invented "Tungsec" patent paving, known for its "keying" system and for being a watertight system of road wood-block paving.

Mr. Bennett had a remarkable career. Born at Bexley Heath in 1866, in the early part of his life he lived in the Tower of London, where he was married, in the Tower Chapel Royal, St. Peter ad Vincula, in 1891. He left school at the age of 14, and became an office boy in a solicitor's office, afterwards working his way up to be the founder and managing director of various companies. His policy was "good workmanship and material," which created for him a sound reputation throughout the trade.

In September, 1932, he founded his own company, Bennett's Wood Flooring Co., Ltd., which, after passing through various phases, exists to-day as Bennett's Wood Flooring (Tungit) Co., Ltd., of which he still held the chairmanship, although for the past year he has lived in semi-retirement. He was widely respected throughout the trade. The interment took place on Tuesday last at Chingford Mount Cemetery.

C. R. Setter.

The death has occurred, at the age of 64, of Mr. C. R. Setter, governing director of the well-known Bristol firm of contractors, Messrs. Stone and Co. (Bristol), Ltd., with which he had been connected for some 40 years.

Mr. Setter was junior Vice-President of the National Federation of Building Trade Employers. In 1928 he was President of the South-Western Federation. He was hon. treasurer of the Bristol Association of Building Trades' Employers, of which organisation he had been President in 1923-24. He was a member of the Architects' and Builders' Joint Consultative Board, and Chairman of the regional and local committees.

TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Tuesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*.

Accrington.—Factory between Main-rd., Accrington and Blackburn, for Bristol Aeroplane Co., Ltd., Filton. Plans prepared in own drawing office: *R. Watson and Co. (Constructional Engineers), Ltd., Filton Office, Bristol.

Ashby-de-la-Zouch.—Extensions to factory for J. Ferguson, Ltd. Plans by company's own staff: Steelwork, *Thorpe and Son, Ltd., Harrington Steelworks, Derby; builder, *Orton and Sons, Kilwardle-st., Ashby-de-la-Zouch.

Bagdad.—Construction of "Habbaniyah Escape":—*Balfour, Beatty & Co., London. (Cost under £900,000.)

Bath.—Alterations and fittings to the domestic science room at St. John's R.C. school, for T.C. :—*Toogood & Bath, £222.

Batley.—(a) Internal and external renovating of Heeley senior boys' school; and (b) internal work on Park-rd. boys' school, for E.C. : (a) *H. Tomlinson and Son; (b) *W. H. Sykes. (Both of Batley.)

Beds.—Installation of two electrically controlled lifts and installation of electric lighting, etc., at St. Peter's Hospital, Bedford, for C.C. Sydney C. Jury, L.R.I.B.A., architect, County Architectural Dept., Bedford :—Electrically controlled lifts—*J. & E. Hall, Ltd., 10, St. Swithin's-la., London, E.C.4, £1,119; electrical installation—*Shoolbred Electrical Co., Ltd., 1, Langley-st., Luton, £4,058.

Belfast.—Pointing and repairing various walls in Falls, Glenbank parks, and repairs to hay-shed in Musgrave Park, for C.B. City Surveyor (Architectural Section, Room 91), City Hall :—*Donegall Building Works, Donegall-rd., Belfast.

Belfast.—Various materials, for Belfast City and District Water Commissioners. W. J. Quinn, secretary :—Paints and oils—*J. McManus, Ltd.; iron pipe castings—*Stanton Ironworks Co., Ltd.; brushes—*J. McManus, Ltd.

Birmingham.—Flight shed on east side of railway near Marston Green, for Austin Motor Co., Ltd., Longbridge Works :—*Wilson, Lovatt & Sons, Ltd., Clarence-st., Wolverhampton.

Birmingham.—Pasteurising dairy at King's Norton, for Ten Acres and Stirchley Co-operative Society, Ltd., Umberslade-rd., Stirchley, Birmingham, 30. H. W. Simister, architect. Norwich Union-chams. : *Works Dept. of Society.

Bolton.—Additions to Lincoln Mills, for R. Entwisle and Co., Ltd., Washington-st. Bradshaw Gass and Hope, FF.R.I.B.A., architects, 19, Silverwell-st. : Contractors, *W. Gornall and Sons, Ltd.; plumber and glazier, *W. Marshall; painting, *W. Ball; cement rendering, *G. Ormerod, Bury; masons, *Jackson's Stone Quarries, Ltd., Mid Hulton; slater, *Warr and Co.; steelwork, *T. Walmsley and Sons; carpenter and joiner, *Tyson's, Ltd.; cast-iron work, *Hindsford Foundry Co., Tyldesley. (Remainder of Bolton.)

Bootle.—Rotproofing emulsion for preservation of sandbags, and 4,600 yds. super of untearable bitumen felt, for C.B. W. A. Harrison, M.Eng. (L'pool), M.Inst.C.E., M.Inst. M.&Cy.E., Borough Engineer and Surveyor :—Rotproofing emulsion—*Brookes Chemicals, Ltd., Lightcliffe, Halifax; untearable bitumen felt—*Long & Browning, Ltd., Unity Building, Ormskirk-rd., Liverpool, 9.

Bournemouth.—Police station at Riviera-rd., Lansdowne, for T.C. :—*F. C. White (Boscombe), Ltd., 112, Wheaton-rd., Southbourne, Bournemouth, £33,050.

Bridlington.—Painting work at waterworks, Mill-la., for T.C. B.E. :—*Simpkin, Lansdowne-rd., Bridlington.

Brigg.—Two public air raid shelters, for U.D.C. N. D. Preston, surveyor, Riverside East :—

G. Berman	£610	0	0
Hornsby and Burrows	471	4	0
F. J. Brown	438	8	0
R. M. Phillips and Son, Brigg	427	15	7
Green Bros., Brigg	392	0	0
*R. Butler, Broughton, nr. Brigg (Rest of Scunthorpe.)	383	11	0

Brighouse.—Extensions to Clifton Bridge mills, for Woodhouse and Mitchell, Ltd., Wakefield-rd. Lunn, Heppenstall and Lunn, architects, 3, Station-rd., Milnsbridge, Huddersfield : Contractors, *Lister, Brook and Co., Ltd. ; joiners, *J. Hawkyard and Sons, Ltd., Elland ; plumbers, *McNulty and Walker ; painters, *Sugden and Gledhill ; structural steel, asbestos cement, sheeting and patent glazing, *W. H. Heywood and Co., Ltd., Huddersfield. (Remainder of Brighouse.)

Caterham and Warlingham.—A.R.P. depot at Caterham-on-the-Hill, for U.D.C. :—

H. W. Frewing, Whyteleafe	£185	0	
J. B. Edwards & Co. (Whyteleafe), Ltd., Kenley	175	0	
J. A. Pettit & Co., Warlingham	173	10	
G. Cobb, Caterham	168	15	
F. G. Bex & Sons, Whyteleafe	168	0	
P. Surridge, Caterham	120	0	
G. Risby, Caterham	95	0	
G. W. Hitchcox, Caterham	80	0	
*R. J. Clarke & Co. (Builders), Ltd., 87, Whyteleafe-hill, Whyteleafe	38	0	

Cavehill.—Latrines, etc., at Cavehill P.E. school, for Lisburn and Belfast Regional E.C. R. Ferguson, architect, 36, Scottish Provident-bldgs., Belfast : *Donegall Building Works, Belfast, £329.

Colchester.—18-in. dia. asbestos cement pipeline of approximately 2,950 lin. yds., and 40 lin. yds. of 10-in. dia. asbestos cement pipes, at Cook's Mill to Lexden pipeline, for T.C. H. Collins, Assoc.M.Inst.C.E., Water Supply Dept., 3, Bank-passage : *Daniel T. Jackson, Ltd., Westbury-rd., Barking, £5,501 11s. 7d. ; pump house, with flat reinforced concrete roof and tiled floor, at Cook's Mill Borehole—*J. Moss & Son, St. Helena-rd., Colchester, £349.

Dunfermline.—New Y.M.C.A. buildings at Benachie : Excavation, brick and plaster, *Hepburn Brothers, Ltd., Edinburgh.

Eccles.—Warehouse, Monton Fields-rd., for E. Taylor, Ltd., Monton Fields-rd., Monton : *Valentine and Knowles, Trevor-rd., Winton. Patricroft, Manchester.

Eccles.—Works additions, Monton Fields-rd., for Frederick Hill and Hiley, Ltd., tripe dressers, Monton Fields-rd. H. S. Fairhurst and Son, F. & A.R.I.B.A., architects, 55, Brown-st., Manchester : *W. Gornall and Sons, Ltd., Gore-st., Salford, 3.

Hampstead.—Works for B.C. :—Outside office accommodation, 33-35, Lancaster-gr., *Roff and Sons, of 55, Heath-st., N.W.3, £213 16s. 4d. ; demolition of tower and works at the town hall, *Payne, Dyter and Sons ; installation of hot and cold water supply at decontamination centre, Shepherd's-walk ; *Mumford, Baily and Preston, Ltd.

Harpenden.—Extensions to Red House Hospital for Committee of the Harpenden Memorial Nursing Centre. Wm. B. Binnie, architect, 26, Old Queen-st., W.1. Quantities : Geo. Corderoy, Ltd., 21, Queen Anne's-gate, S.W.1 : *Jesse Mead, Ltd., 176, Berkhamsted-rd., Chesham.

Harpenden—Making good Masefield-rd., for U.D.C. W. H. Johnson, S. : *C. H. Linton, Ltd., 32, St. Peter's-st., St. Albans, £931 17s. 6d.

Haverfordwest.—Condensed milk factory at Merlins Bridge for Dried Milk Products, Ltd., Dominion-bldgs., 2, South-pl., London, E.C.2. D. Frank Ingleton, F.R.I.B.A., architect, 12, Victoria-pl. : *Rees Davies, Catherine-st., Carmarthen.

Hemel Hempstead.—Repairs at Flawnden Church, for C. of E. Authorities : *E. Waterhouse & Sons, Ltd., King's Works, Chipperfield, King's Langley.

Hendon.—Works for T.C. :—Heating and hot-water installations at A.R.P. posts :—*Cornes & Haighton, Ltd., High Holborn, £179 for each post ; electric lighting for school shelters — *Norwest Services, Ltd., £1,868 19s 7d. ; lantern lights, Broadfields-av. junior and infants' school — *Heywood & Co., £248 10s. ; hollow tiled flat roofs, Broadfields-av. council school—*Windsor Floors, Ltd., £415 ; seating for air raid shelters—*James Walker (Architectural Decorations), Ltd., £1,466 1s. 4d.

Lanark.—New Lochart hospital. Rolland, Anderson and Paul and Partners, architects, 15, Rutland-sq., Edinburgh : Excavation, brick and mason, *Stellmaes, Ltd., Glasgow.

Lanarkshire.—Widening and reconstruction of roadway at Millbank, Newfield Inn, for C.C. W. Chapman, engineer and surveyor, The Chambers, Beckford-st., Hamilton : *Murdoch Mackenzie, Ltd., Motherwell-Wishaw, £172,497 19s.

Lancaster.—Making-up of Clare-rd., Lambert-rd. (part of), for T.C. F. Hill, City E. : —*Joe Johnson, Aldcliffe-rd., Lancaster.

Leeds.—Works for T.C. :—Works at Killingbeck hospital : Lift, *Waygood Otis, £1,027 ; cork flooring, *Cork Insulation and Asbestos Co., £1,194 4s. 2d. ; steel casements, *Rea Metal Case Co., £1,718 7s. 6d. ; pressed steel door frames, *Henry Hope and Sons, £422 17s. 2d. ; sanitary fittings, *Shaw, Knight and Co.,Ltd., £843 11s.—St. James's hospital : Patent roof glazing at proposed ambulance shed, Torre-rd., *Glaslok Patent Roof Glazing Co., Ltd., £319 11s. 9d.

Lichfield.—Factory at Greenhoughs-row, for John Harris Bros., of Coventry. Rolf Hellberg, architect, 13, Queen Victoria-st., Coventry : *J. R. Deacon, Ltd., Lombard-st., Lichfield.

Liverpool.—Extensions to hospital for Board of Management of Waterloo and District Hospital. E. B. Bailey, L.R.I.B.A., architect, 51, North John-st., Liverpool : *J. Webster Bros., Prince Alfred-rd., Liverpool.

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¶**London (Air Ministry).**—Contracts placed for week ended Dec. 9 :—Artificer's works—M. and F. O. Foster and Co., Ltd., Hitchin ; Mawer Bros., Louth ; and Alfred Robinson, Ltd., Harrow. Cables—Duncan Watson (Electrical and Engineers), Ltd., London ; Demolition and Construction Co., Croydon ; Edmundson's Electric Corporation, Newbury ; and Higgins and Cattle, Ltd., London. Concrete runways—Geo. Wimpey and Co., Ltd., London. Heating services—Young, Austen and Young, Ltd., London ; Bearfoot and Bryett, Ltd., London ; Brightside Foundry and Engineering Co., Ltd., Birmingham ; D. Smith and Co., London ; and G. N. Haden and Sons, Ltd., London. Hangars—Unit Construction Co., Ltd., London ; and Tees-side Bridge and Engineering Co., Ltd., Middlesbrough. Hutting—Car Cruiser Caravans, Ltd., Hayes, Middlesex.

¶**London (War Department).**—Contracts placed during the week ended December 5 :—Hutments : Kent—Preston Hall Industries, British Legion Village, Aylesford, nr. Maidstone, and O. Marx, 155, Sandgate-rd., Folkestone ; Eastern Command : G. H. Burgess, Alpha Wharf, Havelock-rd., Southall ; Lancashire : R. Costain & Sons (L'pool), Ltd., Barlow's-la., Fazakerley, Liverpool, 9 ; Wiltshire : Wates, Ltd., 1258/60, London-rd., Norbury, S.W.16 ; Somerset : John Mowlem & Co., Ltd., 91, Ebury Bridge-rd., S.W.1. Building work —Glamorganshire : B. Sunley & Co., Ltd., Castle-st., Cardiff. Building and heating work—Hampshire : Arthur Scull & Son, Ltd., 135, Redcliffe-st., Bristol, 1. External painting—Co. Durham : Angus M. McDougall & Co., Ltd., 24-56, Davaar-st., Glasgow, S.E. Steelwork—Co. Durham : T. C. Jones & Co., Ltd., 93-95, Wood-la., Shepherd's Bush, W.12.

Manchester.—Additions to works, Newton-av. and Vernon-st., Longsight, for Parmiter, Hope and Sugden, Ltd., Newton-av. H. Q. Farmer, architect, Pear Tree House, Jordangate, Macclesfield : *Mason and Co. (Builders), Ltd., Taylor-la., Saw Mills, Denton, Manchester.

Manchester.—Extension to printing works, Dickenson-rd., Hamilton-rd. and Rainforth-st., Rusholme, for Co-operative Wholesale Society, Ltd., Balloon-st. Plans prepared in Architects' Department : *Building Dept., Co-operative Wholesale Society, Ltd., Vere-st., Salford, 5.

Merioneth.—Installing water carriage draining system at Llanbedr council school, for E.C. N. L. Jones, County Architect, Dolgelley :—*W. J. Griffiths & Son, Glaslyn Villa, Barmouth, Merioneth, £103.

Millport.—New Isle of Cambrae Hospital, etc. Watson, Salmond and Gray, architects, Central Station-chams., Union-st., Glasgow : Excavation, brick and mason, *Stellmacs, Ltd., Glasgow.

Newcastle-upon-Tyne. — Reconstruction of premises of Avon India Rubber Co., Oxford-st. H. Wiles, architect, 658, Durham-rd., Low Fell, Gateshead :*Hadden and Hillman, 137, New Bridge-st., Newcastle.

Newcastle-under-Lyme.—Completion of the erection of 121 houses, Milehouse-la. estate, for T.C. A. Cotton, Borough Surveyor : *Eadie and Co. (Wolverhampton), Ltd., 29, Waterloo-rd., Newcastle-under-Lyme.

Nottingham.—Nurses' home, Hucknall-rd., for Governors of General Hospital. Evans, Clark and Woollatt, architects, Eldon-chams., Wheeler-gate, *William Woodsend, Ltd., Wharf-rd., Castle Boulevard, Nottingham.

Oakengates.—New works at Snedshill for J. Maddox & Co., Malleable Iron Foundry. *Davies Bros. & Co., Ltd., Cross-st., Wolverhampton.

Salford.—Works for T.C. : Providing and laying a "Colourphalt" floor in No. 4 pavilion at Old People's Homes : *Limmer and Trinidad Lake Asphalt Co., Ltd., Manchester, £142 9s. ; demolition of existing river wall between Victoria Bridge and Cathedral approach, and erection of new reinforced concrete wall : *J. Dickinson and Co. (Bolton), Ltd., Bolton, £9,229.

Sheffield.—Alterations to tip at Neepsend generating station, for T.C. : *Public Works Dept., Corporation, £1,000.

South Shields.—Painting of schools, for E.C. : *Binns, Ltd., Sunderland (St. Stephen's), £121; *J. Burdon and Co., Gateshead (Baring-st.), £124, and Baring-st. infants) £144.

Southampton.—Refectory buildings and the engineering bays, for Council of University College, Southampton. Col. R. S. Gutteridge, architect, 9, Portland-st. :—*A. G. Saunders, 51, Belmont-rd., Southampton, and Rice & Son, Ltd., 15, Stockwell-rd., London, S.W.9, £38,500.

Southport.—Woodlands site buildings scheme for T.C. : Quartzite, *John Stubbs and Co., Liverpool, £500; fibrous plaster, *The Birmingham Guild, Ltd., £390; metal grilles and balustrades, *The Birmingham Guild, Ltd., £834 13s.; terrazzo, *Terrazzo, Ltd., Manchester, £228 14s.

Stafford.—Supply of iron pipes in connection with Western area water scheme, for U.D.C. Elliott and Brown, consulting engineers, Parliament-st., Nottingham : *Stanton Ironworks Co., Ltd., near Nottingham, £24,808.

Staffs.—Police depot at Forebridge, for C.C. Plans by County Architect : *F. and V. Linford, Ltd.

Staintondale.—Community hall, including stage and extensive kitchen, committee and cloakrooms for committee. F. W. Brown, architect, Suncliff Lodge, Osgodby Cliff, Scarborough : Builders, *G. E. Hutchinson, Sunnyside, Mill-la., Cayton Bay, Scarborough, and *H. Midgley, Cayton Bay, Scarborough; bricks, *Askern Brick Co., Ltd., Askern.

Stretford.—Office extensions at Elsinore-rd., for Switchgear and Cowans, Ltd., Elsinore-rd., Old Trafford : *Russell Building and Contracting Co., Ltd., 165, Plymouth-gr., Manchester.

Sunderland.—Sewers, drains, carriageways, footpaths, boundary walls, etc., in connection with proposed extension of cemetery at Ryhope, for R.D.C. E. Hitchens, 1, The Esplanade :—*John W. White, High Barnes Works, Sunderland.

Tyldesley.—School, for Managers of Mossley Common school. R. Martin, F.R.I.B.A., architect, 90, Deansgate, Manchester : *A. Matthews, Buckley-la., Farnworth, near Bolton.

Wallsend.—Maternity and child welfare centre, for T.C. : *T. Clements and Son, Selbourne-gdns., Jesmond, Newcastle-on-Tyne.

Wardle.—Electric Installations in public air raid shelters. E. A. Stewart, S. : ‡G. E. Taylor, Ltd., 71, Church-st., Littleborough.

Warrington.—Pumping station, rear of Farrell-st., for T.C. : *Wm. Birch and Sons, Ltd., Spen-la., York.

Worcester.—Two reinforced concrete sand filters, complete with the necessary pipework, at waterworks, Barbourne, for T.C. W. Ransom, City E., 22, Bridge-st. : ‡T. Vale and Sons, Ltd., Lombard-st., Stourport-on-Severn, £12,905.

Workington.—New sheep pens and repairs to Harrington-rd. slaughterhouse, for T.C. : *T. Armstrong, Ltd., Low Church-st., Workington.

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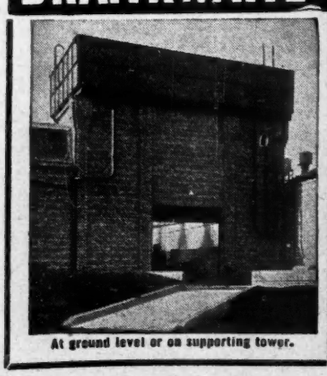
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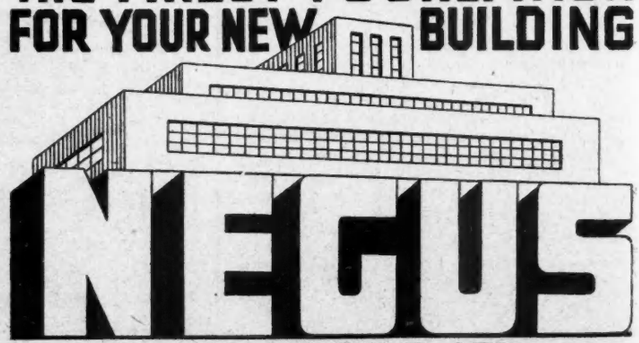
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